News Deserts: Places and Spaces Without News

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Edited by Agnes Gulyas, Joy Jenkins, and Annika Bergstrom

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Editorial

Places and Spaces Without News: The Contested Phenomenon of News Deserts

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Abstract
News deserts have gained prominence both in academic literature and policy discussions about local news in recent years. Although there is no agreed definition of the term, it usually refers to the lack of or diminishing availability, access, or use of local news or media in a community. It is seen as a significant phenomenon that highlights inequalities in local news provisions, challenges of local media operations in the digital environment, and issues around the quality of local journalism and the critical information needs of communities. This thematic issue aims to contribute to the field by bringing together different approaches to the topic, considering varied empirical studies and methodological designs, and providing perspectives from countries around the world with different media systems and cultures. The articles in the thematic issue address three broad issues: approaches to studying news deserts, local news production and news deserts, and the impact of news deserts on communities. Overall, the contributions reveal that the presence of a news desert is not a simple question of a locality having or not having a local media outlet. The concept is better understood as processes affecting access and quality of local news involving places, news media outlets and production, communities, and audiences. We end the editorial highlighting areas for further research, including the need for more holistic, conceptual, and comparative work on the topic.

Keywords
local communities; local journalism; local media; local news; media gaps; news deserts; news inequalities; subnational media.

1. Introduction

Scholarly as well as policy interest in news deserts has increased in recent years, as evidenced by the number of publications and inquiries in a variety of political forums. The topic is not completely new to media and journalism research, as places and spaces without news have been investigated in earlier scholarly endeavours. A particular feature of the current discourse, however, is its focus on local media.

Recent research on news deserts has been significant for several reasons. Firstly, it has highlighted the criti-cal role local media play in providing news and information to communities. Secondly, it has exposed the challenges local media sectors face in the digital age, such as declining revenues, competition from online platforms, recruitment challenges, and issues with sustainability. Thirdly, it has brought attention to the inequalities in news provisions, where certain communities may have limited access to reliable and diverse sources of information compared to others, and others may have long faced lacking or stereotypical news coverage. Fourthly, it has revealed the consequences for communities of living in a news desert.

However, this growing body of scholarly work also has several limitations, including the absence of agreed-upon definitions. Interpretations of "local media" or "news desert" vary significantly. Research also tends to emphasize particular forms of local media, while overlooking other types of subnational media. In Western literature, particularly in the US, news deserts are primarily addressed as a problem related to newspapers, specifically legacy local newspapers (Usher, 2023). Further, the research is time-bound, focusing on the last few decades and the impact of digital technologies, without considering the historical context of the issue. Additionally, issues related to news deserts are often treated uniformly, disregarding potential variations based on community type, media system, funding model, and editorial philosophies. There also remains a need for consistent methods and models for identifying and mapping news deserts. Lastly, there is a lack of comparative studies, which limits our understanding of general patterns and trends.

This thematic issue brings together different approaches and perspectives on the topic of news deserts, aiming to address some of the limitations of the current body of scholarly work. It creates a space for scholars from countries around the world to consider the distinctive contexts and conditions in which news deserts have emerged and the different ways the phenomenon could be studied. We included different types of contributions, covering methodological work and empirical studies. We also invited three notable scholars, Penelope Abernathy (2023), Michelle Ferrier (2023), and Gunnar Nygren (2023), who have pioneered studies on local news deserts and media ecosystems, to share perspectives on where this research began and where it should go.

The articles that follow explore established problems facing local media, as well as emerging shifts. We organize this work into three broad categories: approaches to studying news deserts, local news production and news deserts, and the impact of news deserts on communities. These categories are not mutually exclusive but help to frame the ways news deserts have been understood and researched.

2. Approaches to Studying News Deserts

There are no agreed definitions of the term "news desert." A further conceptual complication is that other terms have emerged in the literature that refer to similar phenomena, including news gaps, news deficits, media shadows, and information voids. Overall, we can identify three main approaches to news deserts: outlet, media ecology, and content-focused understandings (Gulyas, 2021). Importantly, these different approaches not only reflect different interpretations but also different methodologies and scales in research design. Outlet-focused investigations typically assess the availability and supply of media outlets in different geographical localities. This approach tends to concentrate on

local newspapers, in particular on the decline of legacy local news outlets. Studies with this approach tend to consider larger geographical areas, often working at a national scale. Mapping is frequently used as part of the research design to analyze variations in local news provisions, such as contributions in this thematic issue from Negreira-Rey, Vázquez-Herrero, and López-García (2023) on Spanish news deserts and from Wang (2023) regarding the US case.

In media-ecology approaches, researchers explore the availability of local news and information in one or a limited number of specific ecosystems, typically combining qualitative and quantitative methods. Work here includes Ferrier et al.'s (2016, p. 218) investigation on "media deserts," by which they mean an area that "lacks access to fresh, local news and information." They explore the content, conduit, and code layers that affect whether people have access to daily, local news. In the European context, some studies have focused on the decline in pluralism in local media ecologies via the centralization of offices, "copy papers," "black holes" (Harte et al., 2018), and zombie newspapers as Assmann (2023) discusses in this thematic issue.

In content-focused approaches to news deserts, scholars focus on the quality and relevance of news and the robustness of local journalism that is available to a community. News reporting per se means emphasizing certain perspectives while ignoring others. News value criteria and news media logic are at play. Although a news infrastructure might be available and content published, deserts could exist regarding areas, issues, and groups covered. This approach is covered in the thematic issue by: Khanom, Kiesow, Zdun, and Shyu (2023), who suggest a machine learning approach to analyze digital local news content; Vogler, Weston, and Udris (2023), who applied automated geoparser to explore local and regional news content in Switzerland; and Madrid-Morales, Rodríguez-Amat, and Lindner (2023), who mapped the African continent with regard to news deserts on both continental and regional levels.

3. Local News Production and News Deserts

Local news production is an important part of the discourse on news deserts, as it is seen as a key driving force in the emergence and shaping of news deserts. For example, changes in the capacity and quality of local journalism are a primary factor. Local journalists have long experienced staffing reductions, challenges recruiting new staff members, long working hours, and layoffs and closures (Ali et al., 2020). Meanwhile, managers, editors, and reporters at local and regional newspapers are challenged to prevent further losses by adapting to shifts in news consumption in the digital environment while exploiting the commercial and editorial affordances of their print products (Jenkins & Nielsen, 2020). Local newsrooms are also creating distinctive local products to reinforce their brand and value in communities

while reorienting their newsroom structures, cultures, roles, and audience relations to maximize the potential of digital media (Jenkins & Jerónimo, 2021). Events like the Covid-19 pandemic exacerbated existing challenges while forcing adaptation, such as locally owned newspapers that changed their business models to embrace donations, grants, and other strategies to help them survive (Finneman et al., 2023).

In this thematic issue, scholars address multiple production-oriented questions about the prevalence and effects of news deserts, including: Assmann's (2023) exploration of how ownership consolidation in Germany has led to the rise of "zombie papers"; Ferrucci, Finneman, Heckman, and Walck (2023) on the ways US trade publications have explained news deserts; Císařová (2023) on how local newspaper owners and journalists discuss structural changes leading to the declining number of local media outlets in the Czech Republic; and Olsen and Mathisen (2023) on the challenges of recruiting journalists in the local news environment in Norway.

4. Impacts of News Deserts on Communities

Explorations on the impacts of news deserts on communities feature prominently in the literature on the topic. Research has highlighted that living in a news desert could have various negative implications, including a less vibrant local community (Ferrier, 2014), less efficient and unscrutinised local government (Napoli & Weber, 2020), a decline in citizens' civic engagement (Shaker, 2014), less informed citizens (Rubado & Jennings, 2019), and community members feeling isolated (Mathews, 2022).

The impact of news deserts on audiences can be significant because individuals' experiences of the world are, to a large extent, mediated. Societal knowledge is unevenly distributed because of education, social conditions, and different views of the status of knowledge. News consumption can reduce the knowledge gap (McQuail, 2019), but a prerequisite is that there is available and relevant news content. In the case of news deserts, access to relevant news content is reduced or diminished.

Scholars have explored the effects of these declines on access to local news that serves critical information needs, including health, education, transportation, economic development, civic information, and other topics (Napoli et al., 2017), as well as the ways audiences seek out their own means of remaining informed about issues affecting their communities (McCollough et al., 2017). Costera Meijer (2019) challenges a one-dimensional view of content and local information, arguing that sources other than local newspapers can contribute to knowledge and reasoned choices. Therefore, to fully grasp the audience's perspective of declining local news, a media repertoire perspective could be useful.

The effects of news deserts on news users and communities are core questions related to news deserts. In this thematic issue, they are covered by: Magasic, Hess, and Freeman (2023), who studied a rural Australian community and the nuances of local media's role in shaping everyday life; Tai, He, and Liu (2023), who explored the role of social media in news desert areas in China; and Steensen (2023), who studied Covid-19 misinformation in two case municipalities in Denmark and the UK.

5. Conclusion

The articles in this thematic issue clearly reinforce that the concept of news deserts means different things in different settings and contexts, and is interpreted differently depending on what perspective the researcher takes. Overall, the contributions reveal that the presence of a news desert is not a simple question of a locality having or not having a local media outlet. The concept is better understood as processes affecting access and quality of local news involving places, news media outlets and production, communities, and audiences. In addition, news deserts need to be critically questioned in relation to the concepts of news, journalism, and media, especially in the digital environment, where definitions of these key terms are often ambiguous and susceptible to changes.

News desert is a powerful concept that can speak to academic and non-academic audiences, but we need further research that provides a more comprehensive underpinning to the subject area and brings together different perspectives. First, there is a need for a holistic approach examining audience demand (and needs), production conditions, and content, together in relation to news deserts. Second, scholars should also explore how these findings contribute to journalism practice, including investigations of solutions for the decline of local news. Third, widening the scope of "news" is essential, looking at the variety of local media, editorial aims, and information available, to fully understand the nature and extent of news deserts, as well as their impacts on democratic societies. Fourth, the field would also benefit from systematic, comparative studies on news deserts that would reveal general patterns and illuminate the key factors contributing to news scarcity in underserved areas. Finally, we need more conceptual work in the field that advances shared understandings of key terms and the theories that underpin them.

Conflict of Interests

The authors declare no conflict of interests.

References

Abernathy, P. M. (2023). News deserts: A research agenda for addressing disparities in the United States. *News Deserts: Places and Spaces Without News*, *11*(3), 290–292.

Ali, C., Radcliffe, D., Schmidt, T. R., & Donald, R. (2020). Searching for sheboygans: On the future of small market newspapers. *Journalism*, *21*(4), 453–471.

Assmann, K. (2023). Rise of the zombie papers: Infecting Germany's local and regional public media ecosystem. *News Deserts: Places and Spaces Without News*, *11*(3), 360–370.

Císařová, L. W. (2023). Backed into a corner: Structural changes that lead to local news deserts. *News Deserts: Places and Spaces Without News*, *11*(3), 381–389.

Costera Meijer, I. (2019). Journalism, audience, and news experience. In K. Wahl-Jörgensen & T. Hanitzsch (Eds.), *The handbook of journalism studies* (pp. 389–405). Routledge.

Ferrier, M. (2014). *The media deserts project: Monitoring community news and information needs using geographic information system technologies*. Scripps College of Communication.

Ferrier, M. B. (2023). Co-creating news oases in media deserts. *News Deserts: Places and Spaces Without News*, *11*(3), 355–359.

Ferrier, M., Sinha, G., & Outrich, M. (2016). Media deserts: Monitoring the changing media ecosystem. In M. Lloyd & L. A. Friedland (Eds.), *The communication crisis in America, and how to fix it* (pp. 215–232). Springer.

Ferrucci, P., Finneman, T., Heckman, M., & Walck, P. E. (2023). A discursive evolution: Trade publications explain news deserts to United States journalists. *News Deserts: Places and Spaces Without News*, *11*(3), 371–380.

Finneman, T., Mari, W., & Thomas, R. J. (2023). "I didn't know how we were going to survive": US community newspapers' resilience during covid-19. *Journalism Practice*, *17*(5), 893–910.

Gulyas, A. (2021). Local news deserts. In D. Harte & R. Matthews (Eds.), *Reappraising local and community news in the UK* (pp. 16–28). Routledge.

Harte, D., Howells, R., & Williams, A. (2018). *Hyperlocal journalism: The decline of local newspapers and the rise of online community news*. Routledge.

Jenkins, J., & Jerónimo, P. (2021). Changing the beat? Local online newsmaking in Finland, France, Germany, Portugal, and the UK. *Journalism Practice*, *15*(9), 1222–1239.

Jenkins, J., & Nielsen, R. K. (2020). Preservation and evolution: Local newspapers as ambidextrous organizations. *Journalism*, *21*(4), 472–488.

Khanom, A., Kiesow, D., Zdun, M., & Shyu, C.-R. (2023). The news crawler: A big data approach to local information ecosystems. *News Deserts: Places and Spaces Without News*, *11*(3), 318–329.

Madrid-Morales, D., Rodríguez-Amat, J. R., & Lindner, P. (2023). A computational mapping of online news deserts on African news websites. *News Deserts: Places and Spaces Without News*, *11*(3), 330–342.

Magasic, M., Hess, K., & Freeman, J. (2023). Examining the social, civic, and political impact of local newspaper closure in outback Australia. *News Deserts: Places and Spaces Without News*, *11*(3), 404–413.

Mathews, N. (2022). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265.

McCollough, K., Crowell, J. K., & Napoli, P. M. (2017). Portrait of the online local news audience. *Digital Journalism*, *5*(1), 100–118.

McQuail, D. (2019). Equality: An ambiguous value. In J. Trappel (Ed.), *Digital media inequalities. Policies against divides, distrust and discrimination* (pp. 31–42). Nordicom.

Napoli, P. M., Stonbely, S., McCollough, K., & Renninger, B. (2017). Local journalism and the information needs of local communities: Toward a scalable assessment approach. *Journalism Practice*, *11*(4), 373–395.

Napoli, P. M., & Weber, M. S. (2020). Local journalism and at-risk communities in the United States. In A. Gulyas & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 368–378). Routledge.

Negreira-Rey, M.-C., Vázquez-Herrero, J., & López-García, X. (2023). No people, no news: News deserts and areas at risk in Spain. *News Deserts: Places and Spaces Without News*, *11*(3), 293–303.

Nygren, G. (2023). Local journalism with state support. *News Deserts: Places and Spaces Without News*, *11*(3), 401–403.

Olsen, R. K., & Mathisen, B. R. (2023). Deserted local news: Exploring news deserts from a journalistic recruitment perspective. *News Deserts: Places and Spaces Without News*, *11*(3), 390–400.

Rubado, M. E., & Jennings, J. T. (2019). Political consequences of the endangered local watchdog: Newspaper decline and mayoral elections in the United States. *Urban Affairs Review*, *56*(5), 1327–1356.

Shaker, L. (2014). Dead newspapers and citizens' civic engagement. *Political Communication*, *31*(1), 131–148.

Steensen, S. (2023). Dealing with Covid-19 in casual democracies. *News Deserts: Places and Spaces Without News*, *11*(3), 414–425.

Tai, Z., He, B., & Liu, J. (2023). Local news deserts in China: The role of social media and personal communication networks. *News Deserts: Places and Spaces Without News*, *11*(3), 426–436.

Usher, N. (2023). The real problems with the problem of news deserts: Towards rooting place, precision, and positionality in scholarship on local news and democracy. *Political Communication*, *40*(2), 238–253.

Vogler, D., Weston, M., & Udris, L. (2023). Investigating news deserts on the content level: Geographical diversity in Swiss news media. *News Deserts: Places and Spaces Without News*, *11*(3), 343–354.

Wang, R. Y. (2023). The geography of newspaper circulations: A spatial taxonomy of "news(paper) deserts" in the United States. *News Deserts: Places and Spaces Without News*, *11*(3), 304–317.

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Commentary

News Deserts: A Research Agenda for Addressing Disparities in the United States

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Abstract
News deserts are spread unevenly across the US, with as much as a fifth of the country's population handicapped by a lack of access to critical news and information. There is a prodigious amount of recent research outlining the consequences for democracy. However, as policymakers, philanthropists, and entrepreneurs devise solutions, they are encountering gaps in information that hinder their ability to address the news disparities among communities. We need a focused research agenda that assists stakeholders in identifying the communities most at risk, understanding the current flow of critical news and information in communities without a local news provider, and establishing sustainable business models for existing and start-up organizations in both current news deserts and at-risk communities.

Issue
This commentary is part of the issue "News Deserts: Places and Spaces Without News" edited by Agnes Gulyas (Canterbury Christ Church University), Joy Jenkins (University of Missouri), and Annika Bergström (University of Gothenburg).

Today, the US is increasingly divided, not only politically, but also journalistically. Despite the promise of internet and mobile technology, which was supposed to connect all 330 million residents living in this county, the US has experienced a dramatic increase over the past two decades in the number and types of news deserts— defined here as communities where residents have very limited access to the sort of critical and credible local news and information that nurtures grassroots democracy and binds together our society. Seventy million residents—or a fifth of the US population—now live in either the 200-plus counties without a local news outlet or in the 1,630 at-risk counties with only one surviving news provider, often hanging on by a slim financial thread (Abernathy & Franklin, 2022).

The US is a vast country, encompassing more than 3.2 miles. Newspapers have historically been the primary—if not sole—source of local news and information for residents in the thousands and thousands of small and mid-sized urban and rural communities scattered across the landscape. As the lone newspaper in

any one of those communities disappears, there is often no alternative local news outlet.

Unlike many industrialized democracies, the US allocates only a fraction of taxpayer funds to public media. A 2020 study (Pickard, 2020) calculated that the US spends only $1.40 annually per resident on public media programs, such as PBS and NPR, and most of that money goes to funding entertainment programs. This compares to $50 to more than $100 annually per resident allotted to public media outlets in Japan, France, Germany, and individual British Commonwealth countries (including Australia and Canada.) In many of those countries, public media outlets not only cover national news but also regional and local news. Therefore, in the US, when the lone newspaper in any small and mid-sized community disappears, there is a critical need to consider a mix of funds—commercial and philanthropic, in addition to public—to support alternative sources of local news.

Scholars from multiple disciplines have produced a prodigious amount of research in recent years on the consequences for the US democracy of losing

the news, beginning with the Federal Communications Commission (2011) report on the information needs of communities. Recent research and investigative reporting have documented a link between the decline in local news coverage and political engagement (Hayes & Lawless, 2021), an increase in government inefficiency and spending (Gao et al., 2020), and an increase in corruption and misconduct in local businesses, agencies, and institutions ("Uncovered: Shining a light on South Carolina corruption and misconduct," 2021).

This multi-disciplinary research documenting the impact on democratic political, economic, governmental, and cultural institutions has informed and motivated a variety of stakeholders to seek innovative solutions for reviving news. This includes policymakers at both the state and federal levels proposing new regulations and an increase in public funding and subsidies for news organizations, philanthropists investing in nonprofit journalism, industry executives experimenting with new journalistic and business strategies, and faculty directing more than 100 university programs that engage students in filling local reporting gaps in news deserts and at-risk communities.

While these developments are encouraging, significantly reversing the loss of local news will require all stakeholders to work in a concerted fashion to directly address disparities among communities. To do this they will need to be able to (a) identify the communities most at risk, (b) understand the current flow of critical news and information in communities without a local news provider (or in danger of losing one), and (c) develop sustainable business models for existing and start-up organizations in both current news deserts and at-risk communities.

Here's a quick overview of what we know about each of these areas and what additional research would be most useful for stakeholders designing policies and funding processes to target at-risk communities.

First, we need to identify the communities most at-risk. The US has lost more than a fourth of the country's newspapers (2,400) since 2005 and is on track to lose a third by the end of 2025. During the same period, the number of journalists employed by newspapers declined by almost 60%. Local digital start-ups have replaced only a small fraction of the newspapers and journalists lost in recent years. There is a net deficit of more than 30,000 local journalists, who once covered routine, but important, government meetings and produced award-winning investigative pieces that saved lives and averted disaster. In general, economically struggling communities are most likely to lose a paper and not have a print, digital, or broadcast local news alternative.

The disparity among communities and regions in a state can vary dramatically. In order to craft policies and funding processes to address these disparities, we need in-depth media audits in all 50 states that drill down to the community level, tallying the current number of active local news organizations (newspapers, digital-only

outlets, broadcast, and ethnic media) and the number of reporters covering communities in every county. How many communities are without a local news provider or in danger of losing one? How many reporters are assigned to cover each county in the state? Are there any nontraditional alternative sources? Both the University of Oregon's Agora Center (Lawrence et al., 2022) and the League of Women Voters of Washington (2022) have recently conducted extensive audits in their states, and Montclair State University has an ambitious news ecosystem mapping project that also tracks the number of alternative local news sources, such as blogs and newsletters (The News Ecosystem Mapping Project, 2020). There is an urgent need to fill in the blanks on the other 47 states.

Secondly, an understanding of the flow of critical news and information in news deserts is essential. The dramatic decline in the number of journalists at local newspapers has affected the flow of information across all mediums. Numerous research studies have quantified a decline in the number of local news stories appearing, not only in local newspapers but also in other mainstream regional outlets, including print and digital publications, as well as broadcasting stations (Napoli et al., 2019). Content analysis of the material that is published and produced reveals what topics and events are most likely to make headlines, and, by inference, which topics are under covered and overlooked.

In addition to quantifying and analyzing the news that is produced by various mediums, we need to track the actual flow of critical news and information in news deserts, as well as in at-risk communities. Throughout US history, there have been news deserts—rural communities too small and isolated to support a local news outlet, as well as urban communities, often with large ethnic populations, that have been ignored or redlined by mainstream news outlets. Yet, residents in those communities developed workarounds to get the news that would affect them personally. How are people in news deserts currently getting information about local issues? Is it from a neighbor or from a source outside the community, such as social media? How credible and comprehensive is the news and information that travels via workarounds? By researching the types of information that reach people in news deserts and at-risk communities and how people in those communities prefer to receive news, we can build on what already exists, designing processes and tools that not only increase the flow of news but also get critical information to the largest number of people.

We need to rigorously analyze new business models that are working in affluent communities for their adaptability in economically struggling ones. Anecdotal case studies of start-ups often present findings that contrast with the gloom-and-doom headlines about the decline of local news. In fact, both commercial and nonprofit news organizations are thriving in some communities—especially those with affluent and rapidly

growing populations. In general, the economically struggling communities that lose a newspaper are the very places where it is most difficult to sustain either a for-profit or nonprofit news organization. Even with a recent increase in both corporate and philanthropic funding, the footprint of the nation's 550 local and state digital-only news outlets is small and predominantly a big-city phenomenon, with more than 90% of sites located in metro areas.

Third, we need a methodical and rigorous analysis of the business models being utilized by both for-profit and nonprofit news organizations. Can the commercial models developed in urban, affluent markets be transplanted successfully to more rural, less affluent ones? Can nonprofit models be successfully established and, most importantly, supported, in high-poverty areas and longstanding news deserts? What are the incentives that will encourage successful news organizations in adjacent communities to expand their reach into and coverage of at-risk communities?

Whether seeking to revive local news in longstanding news deserts in the US or newer ones, stakeholders are confronted with multiple political, economic, geographic, and infrastructure challenges. Getting news to those communities that have lost local news involves rethinking for-profit, nonprofit, and public strategies and funding at the national, state, and local levels. No one solution will fit all markets. Continued investment in research will be critical in guiding how we respond.

As previous studies have concluded, the loss of local news is a looming crisis for democracy. That is why there is a pressing need to focus on filling the gaps in our knowledge—identifying the communities most at risk, mapping the flow of information in those communities, and evaluating the sustainability of local journalistic business models in a variety of markets.

Conflict of Interests

The author declares no conflict of interests.

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Penelope Muse Abernathy is a visiting professor at Northwestern University Medill School of Journalism, Media and Integrated Marketing. Previously, she was the Knight Chair at the University of North Carolina Hussman School of Journalism and Media (2008–2020).

References

Abernathy, P. M., & Franklin, T. (2022). *The state of local news 2022*. Local News Initiative. https://localnewsinitiative.northwestern.edu/assets/the_state_of_local_news_2022.pdf

Federal Communications Commission. (2011). *Information needs of communities*. https://www.fcc.gov/general/information-needs-communities

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. https://doi.org/10.1016/j.jfineco.2019.06.003

Hayes, D., & Lawless, J. (2021). *News hole: The demise of local journalism and political engagement*. Cambridge University Press.

Lawrence, R., Tabor, C., Nicolosi, M., & DeVigal, A. (2022). *Assessing Oregon's local news and information ecosystem*. Agora Journalism Center. https://agorajournalism.center/newsecosystem22

League of Women Voters of Washington. (2022). *The decline of local news and its impact on democracy*. https://lwvwa.org/resources/Documents/Studies/LocalNews/Decline%2036.pdf

Napoli, P. M., Weber, M., McCollough, K., & Wang, Q. (2018). *Assessing local journalism: news deserts, journalism divides, and the determinants of the robustness of local news*. DeWitt Wallace Center for Media and Democracy. http://dewitt.sanford.duke.edu/wp-content/uploads/sites/3/2018/08/Assessing-Local-Journalism_100-Communities.pdf

Pickard, V. (2020). *Democracy without journalism? Confronting the misinformation society*. Oxford University Press.

The News Ecosystem Mapping Project. (2020). *Local news map—NJ*. https://newsecosystems.org/njmap

Uncovered: Shining a light on South Carolina corruption and misconduct. (2021). *The Post and Courier*. https://www.postandcourier.com/uncovered

Article

No People, No News: News Deserts and Areas at Risk in Spain

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Abstract

In recent decades Spain has suffered a gradual process of depopulation and exodus from rural areas to large capitals. The España Vaciada political and social movement denounces the country's territorial inequality, while the government is working on a strategic plan to address the demographic challenge. At the media level, there is concern about citizens' access to a local and quality journalistic service, key to the strengthening of communities and their democratic functioning. The main objective of this research is to explore the phenomenon of news deserts in Spain, identifying the areas that can be considered news deserts and those that are at risk of becoming so, based on the mapping of digital media in the country. The characteristics of the digital media of the autonomous communities with the highest presence of news deserts are studied to ascertain whether the risk factors of population or richness index are connected to their appearance. The results reveal that 6,304 (77.53%) Spanish municipalities can be considered news deserts, inhabited by 11.6 million people, 24.51% of the country's total population. In addition, another 523 municipalities are at risk of becoming news deserts. In the regions with the largest number of news deserts, there is a clear concentration of media in the main capitals and a weak ecosystem of local and hyperlocal media. Depopulation is the main risk factor in the loss of media and news coverage in local communities.

Issue

This article is part of the issue "News Deserts: Places and Spaces Without News" edited by Agnes Gulyas (Canterbury Christ Church University), Joy Jenkins (University of Missouri), and Annika Bergström (University of Gothenburg).

1. Introduction

The crisis suffered in recent decades by the local press and legacy media (Wadbring & Bergström, 2017) has been fuelled by the consequences of the lack of information services in local communities. The disappearance of daily local press titles endangers the satisfaction of critical information needs (Ferrier et al., 2016; Friedland et al., 2012) and has motivated research into the emergence of so-called news deserts and their effects. This phenomenon has been studied in different countries and contexts in recent years, helping to highlight the issues suffered especially by rural, depopulated, and less economically developed areas.

Since the 1950s and 1960s, Spain has undergone a gradual process of depopulation and exodus from rural areas to large capitals—which is currently also affecting the urban context of small and medium-sized cities (Galletero-Campos & Saiz Echezarreta, 2022). In recent years, the political and social movement of España Vaciada (Emptied Spain) has emerged, which seeks to make depopulated regions visible, denounce inequality in the provision of services, and demand a better quality of life in rural areas as well as measures against ageing and low birth rates, which are a consequence of centralist policies and which cause economic and social problems beyond depopulation (Rodríguez-Rejas & Díez-Gutiérrez, 2021). The movement has been organized into various political parties, which in 2022 formed the Federation of Parties of Emptied Spain to stand in future elections. In the 2019 general elections, Teruel Existe achieved representation in the Congress of Deputies and the Senate.

Since 2017, the demographic issue has been on the political and media agenda (Sáez Pérez, 2021). The Spanish government recognises the problem and warns that 63% of municipalities lost population between 2001–2018, a figure that rises to 80.2% if we look at the period of 2011–2018—90% of them being territories with less than 1,000 inhabitants (Ministerio de Política Territorial y Función Pública, 2019). In response, in 2019 the government approved a package of 130 measures in the national strategy for the demographic challenge.

When the demographic issue is transferred to the communication and media sphere, access to a local and quality journalistic service is a clear concern (Jenkins & Kleis Nielsen, 2020). Municipalities without news media can see their community awareness deteriorate, as "they are neither protagonists of local news nor do they receive information that directly affects their environment" (Galletero-Campos & Saiz Echezarreta, 2022, p. 49). Some previous works have addressed this issue, studying the loss of the provincial press in Castilla La Mancha (Galletero-Campos, 2021), the crisis of the traditional media in Castilla y León (Sanz Hernando, 2017), the informative treatment of depopulation (de Sola Pueyo, 2021), the emergence of new local digital native media in Aragón (Segura Anaya et al., 2020), and the application of artificial intelligence for news coverage in municipalities in empty Spain (Aramburú Moncada et al., 2023).

Given the demographic problems and the evident territorial inequality that Spain suffers, it is necessary to address whether this social reality is reflected in its media ecosystem and in the provision of information services to citizens, which is key to the proper functioning of democracy. The general objective of this research is to explore the phenomenon of news deserts in Spain, an issue that has not been addressed previously in the academic field. Specifically, the following objectives are pursued:

O1: To explore the media map in Spain and to identify the geographical areas that can be considered or are at risk of becoming news deserts.

O2: To find out what the digital media is like in the autonomous communities where the incidence of news deserts is greatest, observing the characteristics of their journalistic media—digital native or legacy nature, local scope.

O3: To determine whether certain contextual factors can be related to the existence of news deserts, such as population or the economic level of these areas.

2. Theoretical Background

2.1. Spanish Media and Social Context

Understanding the distribution and geographical scope of the news media in Spain requires contextualisation.

The current territorial and administrative organisation of the state was shaped after the democratic transition that began in 1975, the point from which the current media ecosystem was also developed.

Spain is a nation-state with central organs of power, which is in turn divided into 17 autonomous communities and two autonomous cities—Ceuta and Melilla—located in North Africa. These are territorial spaces equivalent to regions, with their own autonomous governments and distinct cultural identities. In fact, six of them have co-official languages other than Spanish. The autonomous communities are divided into provinces—a total of 50 in the country, plus the two autonomous cities—which have their governing bodies, the provincial councils. The provinces are divided into municipalities, a total of 8,131 in Spain, which also have their own local governments. Smaller than the province and without an administrative body of their own are the comarcas, which are groupings of municipalities formed on the basis of historical alliances of a geographical and human nature. In social terms, Spain has a total population of 47.38 million inhabitants. Although the population has been growing over the last few decades, there are significant internal problems of depopulation, an inequality that is also reflected in the economic sphere.

In the current Spanish media ecosystem, there are public broadcasting media—at the national level, in some autonomous communities, and municipalities—as well as private media provided by large media groups and small companies, and also alternative, community, or citizen media. The system has undergone major transformations in recent decades, going from a scenario dominated by large publishing and media groups in the 1980s and 1990s to the crisis of the traditional model, the adaptation to the digital scenario, and the consequences of the economic crisis of 2008. The first national map of local media was made by Macià Mercadé (1993) in 1990, identifying 95 newspapers, 410 radio stations, and 113 local television channels. The first digital media database in 2005 identified a total of 1,075 outlets, of which 22.3% were digital natives (Salaverría Aliaga, 2005). In 2018, the updated map located up to 3,065 active digital media—50.9% of them digital natives (Salaverría Aliaga et al., 2018). The latest revision of the map, which is used as the basis for this research, identified in April 2021 a total of 2,874 active digital media, of which 1,361 are digital natives (Negredo Bruna & Martínez-Costa, 2021). In recent years, mappings have shown a media concentration associated with population and economic factors (Negreira-Rey, 2021), a significant growth of digital natives (Negredo Bruna et al., 2020), and of local and hyperlocal media (Negreira-Rey et al., 2020).

2.2. Previous Research on News Deserts

In recent years, various projects and research have identified the emergence and characteristics of news deserts in different contexts. So far, media mapping and location of

news deserts have both been carried out at the national level in the US (Abernathy, 2020; Bucay et al., 2017; Ferrier et al., 2016), the UK (Gulyas, 2020), Brazil (Lins da Silva & Pimenta, 2020), and Portugal (Jerónimo et al., 2022). These studies delimit geographical areas of different dimensions for the identification of news deserts: postal codes, counties, or states in the US; postcode district areas in the UK; or municipalities in Brazil and Portugal. Researchers have measured the number of daily and weekly newspapers, the existence of digital media, hyperlocal media, radio and television, ethnic media outlets, and public media. They have analysed their circulation and digital audience, as well as their ownership, and have related the datasets to population and wealth indicators, or the presence of local organs of power.

Generally speaking, there has been a significant disappearance of traditional daily press titles. Added to this is the emergence of "ghost newspapers," those that are taken over by larger companies and do not regularly cover information from the local community (Abernathy, 2020). Corporate concentration is increasing and is subsequently reducing the diversity and quality of news services, as well as the proximity of news coverage (Abernathy, 2020; Miller, 2018).

While local media have disappeared, up to half of local journalists have also been lost in some contexts (Abernathy, 2020) and digital media and their audiences have increased (Gulyas, 2020). Although it is noted that hyperlocal digital media tend to be in territories with fewer local newspapers (Gulyas, 2020), these new media outlets do not always grow to occupy underserved areas. In fact, digital media and print newspapers tend to be equally numerous in the same regions (Gulyas, 2020), as they also need a market with an audience, subscribers, advertisers, or other financial support (Abernathy, 2020).

Several studies show that the loss of newspapers tends to occur more frequently in rural communities, as their news ecosystems are weaker, have higher rates of poverty, have a richer racial and ethnic diversity, are isolated from other population centres, or have difficulties in accessing a good Internet connection (Abernathy, 2020; Damanhoury et al., 2022; Mathews & Ali, 2022).

Citizens living in news deserts perceive a lack of information about local events and their sense of community and visibility of their locality is threatened, as they only make headlines in mainstream media for negative events (Mathews, 2022). In these areas, it is more difficult to obtain information about the community and maintain social bonds (Mathews & Ali, 2022), power may feel less policed (Matherly & Greenwood, 2021), and citizens resort to relying on platforms such as Facebook or Twitter to keep them informed, although such news may be unreliable and subject to fragmentation (Smethers et al., 2021).

2.3. News Deserts Conceptualisation

The conceptualisation of news deserts has sought to reflect the reality of territories that have suffered the closure of media outlets, the reduction of available local information or the lack of news coverage of their communities. In these contexts, citizens do not see their critical information needs covered because they cannot access quality news about what is happening in their local territory (Smethers et al., 2021), which is vital for making decisions that affect their quality of life (Abernathy, 2020).

When defining news deserts, researchers agree that they refer to the lack of media and news in a small territory where a local community resides. One of the reference definitions is that proposed by Abernathy (2018, p. 16), who characterises news deserts as a "community without a local newspaper," whose inhabitants "have very limited access to the sort of credible and comprehensive news and information that feed democracy at a grassroots level" (Abernathy, 2020, p. 18). Other authors such as Miller (2018, p. 60) also describe news deserts as "communities with no outlet for locally reported news."

However, the main problem is not the absence of media in local territories, but the existence of communities that are without news to meet their specific information needs (Napoli et al., 2018). Ferrier et al. (2016, p. 221) define media deserts as "a geographic locale that lacks access to fresh, local news and information," while Diah Astuti and Irwansyah (2022, p. 382) describe news deserts as a "community or area that is not covered by newspapers due to the declining population of local newspapers in various regions."

Jerónimo et al. (2022, p. 8) also address the lack of media and local news coverage, defining news deserts as "municipalities where there are no local media or where there are no media covering local news on a regular basis." The authors distinguish between news deserts (municipalities with no local news), semi-deserts (with less frequent or unsatisfactory news coverage), municipalities at risk (with one media outlet creating local news), and out-of-the-desert (with two or more media outlets creating local news).

In this research, developed in the Spanish context, we apply the concept of news deserts based on the absence of local information coverage in a community. Relying on the above definitions, we consider news deserts to be those small and delimited communities or geographical areas that are not covered by any media so that their citizens cannot satisfy their critical information needs in the local environment. We understand that access to local news content is therefore key. We consider that there are contextual risk factors that may favour a geographical area becoming a news desert, such as population, wealth, rural or urban environment, economic development of the area, news media density, or access to technologies.

The geographical unit used to identify news deserts is the municipality. In Spain, there are a total of 8,131 municipalities, all with defined geographical boundaries and their own local government, although they can be very different in terms of size or population. The municipality

is the smallest local territorial area with an administrative and governmental structure, and it is also the reference space for defining journalism and local media in Spain (Negreira-Rey et al., 2020).

In the results of this research, we classify as news deserts those municipalities where there is no informative coverage. As in previous research (Jerónimo et al., 2022), we also identified the areas at risk of becoming news deserts, classifying as such those municipalities in which only one media outlet—legacy or digital native—provides news coverage.

3. Methodology

This study initiates research into the phenomenon of news deserts in Spain, which implies an exploratory and descriptive nature of the research and its objectives.

To answer O1, we take as a starting point the map of digital media in Spain, updated in April 2021 (Negredo Bruna & Martínez-Costa, 2021). The directory lists a total of 2,874 active digital outlets. It includes native and legacy media, which have published content in the three months prior to the review, with a journalistic character, and which are based in Spain or have a specific edition for the country. From this database, we reviewed the location—taking as a reference the registered office—and the areas of coverage—based on the description of the project and the informative sections of its websites—of each media outlet, identifying the municipalities covered by each of them. In this way, we obtained their geographic distribution and the number of news media with coverage in each municipality of the state, locating those we consider to be news deserts or at risk of becoming so. To relate the news deserts to the population density of the municipalities, we used the official data of municipality size (km^2) from the Registry of Local Entities and the municipal population data for 2021, available from the National Institute of Statistics.

Using descriptive statistical treatment of the data, we detected the autonomous communities with the highest presence of news deserts. We used them as cases of interest for the study of their digital media, exploring the characteristics of their news outlets to identify possible common trends or risk factors (O2). We analyse the native or legacy characteristics of the outlets, based on data from the previously referenced map (Negredo Bruna & Martínez-Costa, 2021). To delve deeper into the local dimension of the news media, we used data from the map of digital media of proximity in Spain (Negreira-Rey, 2020), in which the local scope was defined in greater detail—regional, provincial, inter-comarcal (several comarcas), comarcal (one comarca), inter-municipal (several municipalities), municipal (one municipality), and hyperlocal (smaller areas than the municipality, such as the neighbourhood, the district, or the parish)—which is necessary to assess more precisely the degree of proximity of the news offer.

Finally, we consider whether some contextual factors can be related to the emergence of news deserts (O3), taking into account the population and the average income per person as an indicator of wealth. For this purpose, we use population data for each municipality for the years 2001 and 2021 and income per person and municipality for 2019, obtained from the National Institute of Statistics. Using SPSS statistical software, we applied inferential statistics to study the relationship between the number of news media outlets per municipality and the contextual variables described, specifically with the bivariate correlation analysis. With Pearson's coefficient (r) we measured the strength with which two variables are associated, although it should be remembered that correlation does not imply causality. In the variables with significant correlation, we went deeper into the descriptive statistical analysis by segmenting the cases according to the evolution of the population in the last two decades and the classification of the informative deserts.

The methodological design of the research assumes several limitations. Although the digital media map from which we started is the most complete and up-to-date database of active news media in Spain, we assume that it does not include all the outlets in the country—it leaves out press, radio, and television media without digital editions—and that it may lose validity over time. We also recognize that the map of digital news media presents limitations when it comes to exhaustively identifying the total universe of active digital media in Spain—it is difficult to track down all initiatives when exploring the local and hyperlocal media ecosystem at the municipal level for the whole country, especially when there are no official registers and many projects have a short life span. Due to the great diversity of media outlets included in the map, there are cases in which neither the location nor the area of coverage can be clearly identified, so a certain margin of error is assumed in the identification of news deserts. The research does not include digital audience data for each media outlet, which would help to obtain a more accurate picture of the severity of the risk in areas that are not yet news deserts. Population and level of wealth are studied as risk factors in the development of news deserts, although it would also be of interest to measure the impact of other factors, such as technology access and internet connection, which can be addressed in future research.

4. Results

4.1. Identification of News Deserts in Spain

After reviewing the location and coverage areas of the digital media indexed on the map, we were able to discover the number of media outlets that offer news coverage in each municipality in Spain. Of the 8,131 Spanish municipalities, 6,304 (77.53%) have no media located in their territory, nor do they receive regular news service

from any media. They can therefore be considered news deserts, and are inhabited by a total of 11,611,825 citizens, 24.51% of the country's population. We found 523 (6.43%) municipalities that are only covered by one media outlet and could be considered areas at risk of becoming news deserts. They are home to 9.47% of the Spanish population.

If we look at the distribution of the number of media outlets offering news coverage per municipality, we can see that—with the exception of news deserts—the most common situation is that there are between 1–5 news media outlets with regular news coverage per municipality (Table 1). It is uncommon to find municipalities covered by 6–10 news media outlets, and those with more than 10 outlets are exceptional.

If we visualise these data on the map of Spain (Figure 1), we see clear differences in the presence of news deserts in the different regions of the country. We find very pronounced concentrations in the number of mapped media and significant demographic inequalities per autonomous community (Table 2). The municipalities that are covered by more than 10 media outlets are, in general, cities that correspond to the capital cities of provinces. The dispersion of the pop-

ulation and the demographic density of the municipalities is also a factor that can be related to the news deserts. It is observed that, while the average population density for all municipalities in Spain is 178.55 inhabitants/km^2, in municipalities that are news deserts this falls to 83.36 inhabitants/km^2 and rises to 506.99 inhabitants/km^2 in municipalities that are not news deserts. The communities of Madrid, whose capital is also the capital of the state, and Cataluña, where the city of Barcelona is located, are atypical cases. Both cities stand out for their demographic density, economic activity, and media concentration, as they are home to most of the national media organisations. The municipality of Madrid has 524 media outlets, and the city of Barcelona has 184.

Data on the presence of news deserts per autonomous community allow us to identify those areas where this phenomenon is most pronounced (Table 2). There are five regions in which more than 90% of their municipalities can be considered news deserts: Castilla y León (96.89%), La Rioja (95.98%), Comunidad Foral de Navarra (93.38%), Castilla La Mancha (90.86%), and Cantabria (90.19%). Taking into account the population of these municipalities, we observe population percentages of

Table 1. Distribution of the number of news media outlets with coverage per municipality.

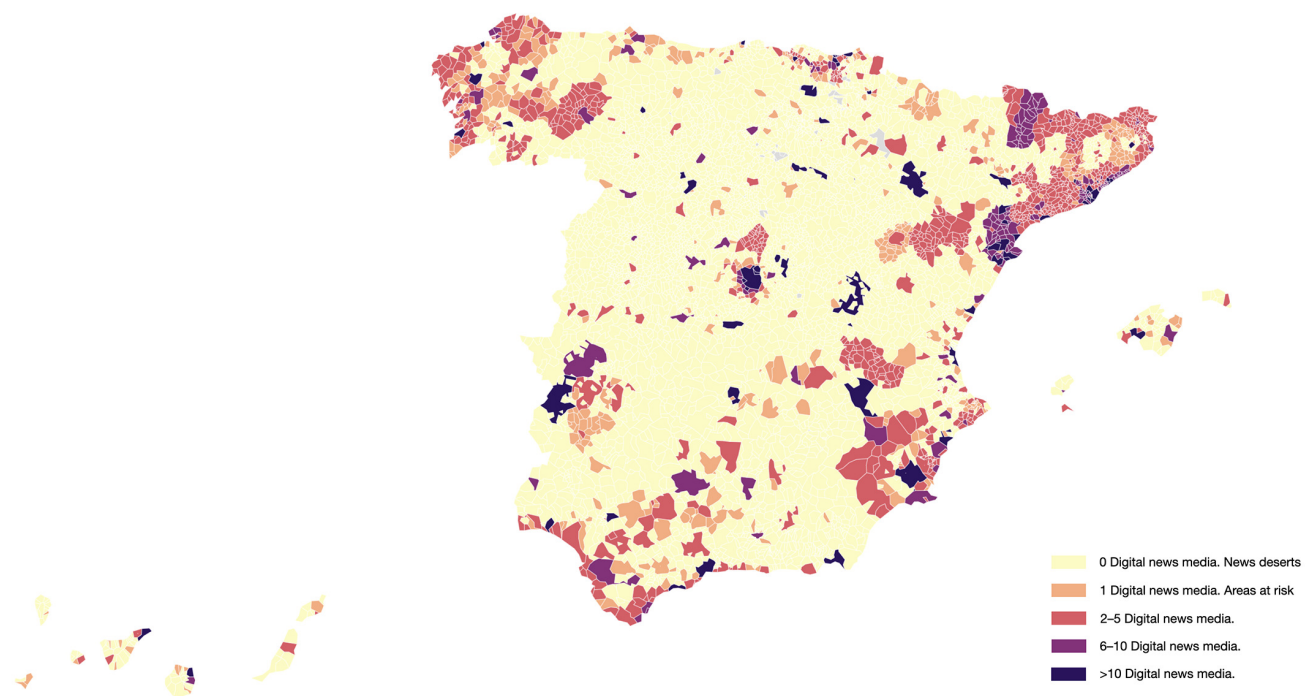| News media outlets	Municipalities	Population
0	6,304 (77.53%)	11,611,825 (24.51%)
1–5	1,569 (19.30%)	13,971,749 (29.49%)
6–10	207 (2.55%)	7,381,928 (15.58%)
>10	51 (0.63%)	14,419,605 (30.43%)

Figure 1. Distribution of media with news coverage by municipality in Spain.

Table 2. Distribution of digital news media, population, presence of news deserts, and population affected by news deserts per autonomous community.

Autonomous community	Digital news media (% total Spain)	Population (% total Spain)	Municipalities news deserts (%)	Population in municipalities news deserts (%)	Average population density in news deserts (habitants/km^2)*
Andalucía	295 (10.48%)	8,472,407 (17.88%)	679 (86.50%)	3,085,483 (36.42%)	150.08
Aragón	73 (2.59%)	1,326,261 (2.80%)	585 (80.03%)	391,494 (29.52%)	23.75
Canarias	80 (2.84%)	2,172,944 (4.59%)	67 (76.14%)	879,944 (40.64%)	286.41
Cantabria	40 (1.42%)	584,507 (10.67%)	92 (90.19%)	249,692 (42.72%)	149.41
Castilla y León	135 (4.79%)	2,383,139 (5.03%)	2,178 (96.89%)	1,030,824 (43.09%)	14.76
Castilla La Mancha	124 (4.31%)	2,049,562 (4.33%)	835 (90.86%)	1,122,512 (54.69%)	26.72
Cataluña	576 (20.45%)	7,763,362 (16.38%)	197 (20.80%)	221,695 (2.86%)	77.13
Comunidad de Madrid	706 (25.07%)	6,751,251 (14.25%)	95 (53.07%)	643,632 (9.55%)	211.06
Comunidad Foral de Navarra	55 (1.95%)	661,537 (1.40%)	254 (93.38%)	280,207 (42.36%)	123.07
Comunitat Valenciana	200 (7.10%)	5,058,138 (10.67%)	423 (78.04%)	1,579,511 (31.23%)	462.00
Extremadura	57 (2.02%)	1,059,501 (2.24%)	343 (88.40%)	473,257 (44.79%)	23.69
Galicia	146 (5.18%)	2,695,645 (5.69%)	114 (36.42%)	335,573 (12.46%)	56.04
Illes Balears	67 (2.38%)	1,173,008 (2.48%)	52 (77.61%)	419,688 (35.78%)	131.36
La Rioja	27 (0.96%)	319,796 (0.67%)	167 (95.98%)	105,050 (32.85%)	27.96
País Vasco	131 (4.65%)	2,213,993 (4.67%)	148 (58.96%)	298,374 (13.48%)	160.60
Principado de Asturias	42 (1.49%)	1,011,792 (2.14%)	57 (73.08%)	312,878 (30.92%)	73.93
Región de Murcia	56 (1.99%)	1,518,486 (3.20%)	18 (40.00%)	182,011 (11.90%)	354.20
Ceuta	10 (0.36%)	83,517 (0.18%)	0 (0.00%)	0 (0.00%)	0
Melilla	3 (0.11%)	86,261 (0.18%)	0 (0.00%)	0 (0.00%)	0
Total Spain	2,816**	47,385,107	6,304	11,611,825	178.55

Notes: * Population density at the municipality level; ** 58 news media outlets with no autonomous community identified.

between 30% and 50% of inhabitants who may not have their critical information needs covered.

In the opposite position are five autonomous communities with a percentage of municipalities considered news deserts of less than 60% and with less than 20% of their population in these territories. These are Cataluña, Galicia, Región de Murcia, Comunidad de Madrid, and País Vasco. As noted above, Comunidad de Madrid and Cataluña are regions with a high media and population density. Furthermore, previous studies have shown that Cataluña, Galicia, and País Vasco stand out for their local media ecosystems and also for being autonomous communities with their own co-official languages, in addition to Spanish (Negreira-Rey et al., 2020).

4.2. Regions With Higher News Desertification

This section studies the digital media of the regions with the highest percentage of municipalities considered news deserts. Two main characteristics of their media are studied: their digital native nature, related to the age of the projects and their entrepreneurial spirit or degree of innovation; and their local scope, important for understanding the concentration of the media in each region and the presence of local and hyperlocal media in small territories.

In the autonomous communities with the highest news desertification, some common trends can be observed (Table 3). There is a balance between digital native and legacy media. Digital native media represent almost 50% of the total in these regions, which shows renewed media ecosystems. In general, digital natives have experienced a boom in the country during the last two decades, following the crisis of the traditional media model and the economic recession.

Regarding the local scope of the media outlets, almost half of them are regional or provincial in scope, except in Comunidad Foral de Navarra. They cover large

Table 3. Characteristics of the news media outlets in the autonomous communities with the highest presence of news deserts.

Type of media		Castilla y León	La Rioja	Comunidad Foral de Navarra	Castilla La Mancha	Cantabria
Digital news media		137	27	55	124	40
Digital native origin	Legacy	51.09%	59.26%	50.91%	45.97%	52.50%
	Native	48.91%	40.74%	47.27%	54.03%	47.50%
	N/A	0.00%	0.00%	1.82%	0.00%	0.00%
Local scope	Regional	7.03%	55.00%	38.46%	23.76%	44.74%
	Provincial	50.00%			37.62%	
	Inter-comarcal or comarcal	17.19%	0.00%	17.95%	10.89%	2.63%
	Intermunicipal or municipal	24.22%	45.00%	33.33%	25.74%	44.74%
	Hyperlocal	0.00%	0.00%	7.69%	0.00%	0.00%
	N/A	0.78%	0.78%	2.56%	1.98%	7.89%

Note: La Rioja, Comunidad Foral de Navarra, and Cantabria are single-province, so the regional and provincial scope is equivalent in these territories.

territories within the region, with an informative vocation that exceeds the local level. The location of their company headquarters shows that these media tend to be concentrated in the main capitals of the region, which are also the most populated, with the greatest economic activity and where the government institutions are located. In Castilla y León, 60.58% of the media are located in the capital municipalities of the provinces, while in La Rioja they account for 48.14%, in the Comunidad Foral de Navarra 45.45%, in Castilla La Mancha 50%, and in Cantabria 40%. It should be noted that La Rioja, Comunidad Foral de Navarra, and Castilla La Mancha have only one capital each.

The distribution of media in each territory is clearly unequal, with little weight of local media covering municipalities or comarcas beyond the main cities. No region has more than 50% of comarcal or municipal media, and only the Comunidad Foral de Navarra has some hyperlocal media. This is evidence of the lack of news media in rural and less populated areas that regularly cover the local news of the territory and its people.

4.3. News Deserts and Risk Factors

In this section, we determine whether the contextual factors of population and wealth correlate with the appearance of news deserts. Taking into account the growing depopulation of small municipalities, these factors could help to detect or prevent the risk of these areas becoming news deserts.

The correlation, through Pearson's coefficient, between the variables of media per municipality and population in 2021 is positive and statistically significant ($r = 0.906$, $p < 0.001$). It shows a very strong correlation between the number of news media and the number of

inhabitants, in such a way that in the more populated municipalities, there is a greater number of outlets and vice versa. The correlation is also positive and statistically significant between the number of news media per municipality and the average income per person ($r = 0.103$, $p < 0.001$), although at much lower levels. The average income in the ten most populated municipalities in Spain, where the large cities are located, is €13,923 per person. In municipalities with more than 50,000 inhabitants, a total of 149 nationwide, the average income is €12,711 per person, and in municipalities with less than 50,000, it is €11,648 per person. As we can see, the difference is more than €2,200 between the most and least populated areas.

It is possible, therefore, to confirm that the smaller the population of a municipality, the more likely it is to be a news desert, although the correlation does not imply causality and the population factor does not explain its appearance, or it is not the only reason. This also happens with the personal wealth index, although the relationship is not as strong.

We then observed the correlation between the number of news media per municipality and the variation in population in those losing inhabitants during the period 2001–2021, resulting in a positive and statistically significant correlation ($r = 0.163$, $p < 0.001$), although also at low levels. This relationship indicates that municipalities that lost the most population in these 20 years are more likely to be news deserts. Beyond this correlation, the variation in population and the number of media per municipality reveal other data of interest.

Of the municipalities that in the period 2001–2021 lost more than 1% of their population, a total of 4,929, have an average of 0.35 news media outlets per municipality. Of these, 88% (4,338 municipalities) are news

deserts, 4% (197 municipalities) are areas at risk of becoming news deserts, and 591 municipalities have more than one media outlet. The loss of population over the last 20 years has been significant in these territories, with an average 25% decrease in the number of inhabitants. In 2001, these municipalities had an average population of 1,791 inhabitants and represented 21.71% (8,829,938 inhabitants) of the national population. In 2021, their average population was 1,563 inhabitants, but their weight in the state decreased to 16.26% (7,702,725 inhabitants). The average income, as a factor that correlates positively with the appearance of news deserts, is €11,264 per person in these areas.

In the opposite situation are the municipalities that gained population. Of the ten most populated municipalities in Spain, eight have experienced population growth and in four of them, the population has grown by more than 1% in the period indicated. A total of 2,916 municipalities gained more than 1% of population between 2001–2021 and have 1.71 news media per municipality on average. Sixty point two percent (1,754 municipalities) are news deserts, 10.5% (305 municipalities) are areas at risk of being news deserts, and 1,162 municipalities have more than one media outlet. In these 20 years, these municipalities have experienced significant population growth, with an average increase of 45%. In 2001 they had 10,475 inhabitants on average and represented 75.12% (30,543,710 inhabitants) of the total national population. In 2021 they had 12,995 inhabitants on average and their weight in the country's population had risen to 79.97% (37,893,260 inhabitants). The average income, as a factor that correlates positively with the appearance of news deserts, is €12,278 per person.

As singular cases, we saw what happened in municipalities that lost at least 50% of their population in the 20 years studied. The territories that suffered this critical level of depopulation number 253, with 97.6% being news deserts and with an average of 0.04 news media per municipality. On the other hand, we see that of the municipalities with more than 50,000 inhabitants, a total of 149 in the country, 130 grew in population and 98 did so by more than 1% over the 2001–2021 period. Of them, only 6.0% (nine municipalities) are news deserts, with an average of 12.85 media outlets per municipality.

5. Conclusions

More than 11.6 million inhabitants in Spain live in municipalities without any media that provides them with local information about the area in which they live. They represent 24.51% of the Spanish population and reside in the 6,304 municipalities we identified as news deserts. The figure is alarming, considering that these communities may not have their critical information needs covered. The situation is aggravated considering that another 9.47% of the population lives in one of the 523 municipalities at risk of becoming news deserts, i.e., which are only covered by one media outlet.

Although previous studies of the phenomenon of news deserts have addressed different international contexts using different methodologies (Gulyas, 2021), they have reached common conclusions about their adverse effects, which we can also apply to the Spanish case. Residents of news deserts do not receive current professional information or information published in traditional media—although they might receive information through other channels, such as Facebook (Collier & Graham, 2022)—about what is happening in their community on a daily basis, and this damages their democratic functioning, social cohesion, or sense of community (Mathews, 2022). Neighbours and local organisations are not represented in the media, do not obtain real visibility for their communities (Mathews & Ali, 2022), and lack a fundamental public service for making decisions that affect their quality of life (Abernathy, 2020).

In the case of Spain, territorial inequality in access to local information goes hand in hand with population inequality. We have found that the municipalities with the fewest inhabitants and those that have suffered depopulation processes in recent years are those that have the fewest media and are most frequently news deserts. Although the high number of municipalities in Spain (8,131) and their small size may affect these data, it is clear that depopulation is a determining risk factor in the appearance of news deserts, as is the wealth index, although to a lower degree. Of the 4,929 municipalities that lost more than 1% of their population in the period 2001–2021, 88% are news deserts, which should raise concerns about the protection of the media ecosystem and access to local information in depopulated territories.

Global numbers for the news media in Spain show a rich and growing ecosystem, with 2,874 active digital media in 2021 and an important weight of digital natives and local and hyperlocal media (Negredo Bruna & Martínez-Costa, 2021; Negreira-Rey et al., 2020). So, why are there so many areas in a news desert in Spain? If we look at the characteristics of digital media in autonomous communities with the highest percentage of news deserts, we see that they tend to be concentrated in the most populated cities and capitals of the provinces. Furthermore, most of them have a regional or provincial scope, with a lower weight of local media covering smaller and more remote municipal or county areas, and with an exceptional presence of hyperlocal media. We can say that they have a poorer network of local and hyperlocal digital media than other territories.

If we contrast this image with that of the communities with a lower percentage of news deserts, we observe regions with a high population and digital media density—such as Madrid and Cataluña—and with a strong ecosystem of local and hyperlocal media, together with cultural singularities such as the existence of their own co-official languages—such as Galicia, País Vasco, and Cataluña. We, therefore, conclude that local and

hyperlocal digital media do not necessarily appear in territories with few media organisations or that are at risk of becoming news deserts, as has already been observed in other countries (Gulyas, 2020), but they tend to be more numerous in territories where there is a media, population and economic density that makes it easier for them to maintain their activity.

The phenomenon of news deserts needs to be addressed in Spain. There is a large territory, and more than 11 million inhabitants that do not have their local media to tell their reality and satisfy the citizens' right to information, as recognized by the Spanish Constitution. The political and social movement of España Vaciada can contribute to making this problem visible, demanding equality in the provision of services for the poorest and most depopulated rural areas. Access to local information and the protection of local media should be contemplated as part of the government's strategy against the so-called demographic challenge, as other researchers have previously pointed out (Galletero-Campos & Saiz Echezarreta, 2022). Knowing the risk factors for the development of news deserts—such as population or wealth index—and their evolution in the territories, as well as the state of the media ecosystem, can fuel work to reverse the situation of citizens living in news deserts or areas at risk.

This research is a first approach to the phenomenon of news deserts in Spain. It attempts to offer a national picture of the problem while recognizing important limitations. In future works it will be necessary to study what happens in specific areas and communities, to understand in greater depth their news media, the quality and frequency of the news, the information sources used by citizens, as well as the possible risk factors and their evolution.

Conflict of Interests

The authors declare no conflict of interests.

References

Abernathy, P. M. (2018). *The expanding news desert*. The Center for Innovation and Sustainability in Local Media. https://www.cislm.org/wp-content/uploads/2018/10/The-Expanding-News-Desert-10_14-Web.pdf

Abernathy, P. M. (2020). *News deserts and ghost newspapers: Will local news survive?* The Center for Innovation and Sustainability in Local Media. https://www.usnewsdeserts.com/wp-content/uploads/2020/06/2020_News_Deserts_and_Ghost_Newspapers.pdf

Aramburú Moncada, L. G., López-Redondo, I., & López Hidalgo, A. (2023). Artificial intelligence in RTVE at the service of empty Spain. News coverage project with automated writing for the 2023 municipal elections. *Revista Latina de Comunicación Social*, *81*, 1–16. https://doi.org/10.4185/RLCS-2023-1550

Bucay, Y., Elliott, V., Kamin, J., & Park, A. (2017). *America's growing news deserts*. Columbia Journalism Review. https://www.cjr.org/local_news/american-news-deserts-donuts-local.php

Collier, J., & Graham, E. (2022). *Even in "news deserts" people still get news*. Center for Media Engagement. https://mediaengagement.org/research/people-still-get-news-in-news-deserts

Damanhoury, K. E., Coppini, D., Johnson, B., & Rodriguez, G. (2022). Local news in Colorado: Comparing journalism quality across four counties. *Journalism Practice*. Advance online publication. https://doi.org/10.1080/17512786.2022.2083003

de Sola Pueyo, J. (2021). Informar sobre la despoblación desde la mirada de los periodistas rurales [Report on depopulation from the perspective of rural journalists]. *Estudios sobre el Mensaje Periodistico*, *27*(3), 825–832. https://doi.org/10.5209/esmp.70958

Diah Astuti, I., & Irwansyah, I. (2022). Online alternative media and their effort to overcome news desert in Indonesia. *Jurnal Komunikasi*, *14*(2), 382–403. https://doi.org/10.24912/jk.v14i2.19044

Ferrier, M., Sinha, G., & Outrich, M. (2016). Media deserts: Monitoring the changing media ecosystem. In M. Lloyd & L. Friedland (Eds.), *The communication crisis in America, and how to fix it* (pp. 215–232). Palgrave Macmillan. https://doi.org/10.1057/978-1-349-94925-0_

Friedland, L., Napoli, P., Ognyanova, K., Weil, C., & Wilson, E. J., III. (2012). *Review of the literature regarding critical information needs of the American public*. Federal Communications Commission. https://transition.fcc.gov/bureaus/ocbo/Final_Literature_Review.pdf

Galletero-Campos, B. (2021). *Ciudades sin periódico. Auge y declive de la prensa provincial de Castilla La Mancha* [Cities without newspapers. Rise and decline of the provincial press in Castilla La Mancha]. Editorial Fragua.

Galletero-Campos, B., & Saiz Echezarreta, V. (2022). Despoblación y comunicación: Propuestas para abordar un objeto de estudio emergente [Depopulation and communication: Proposals for approaching an emerging research topic]. *Doxa Comunicación. Revista Interdisciplinar de Estudios de Comunicación y Ciencias Sociales*, *35*, 39–57. https://doi.org/10.31921/doxacom.n35a1507

Gulyas, A. (2020). *Mapping local news provisions*

and reach in England. ArcGIS StoryMaps. https://storymaps.arcgis.com/stories/837bd6fbe374480f86f41a9bbc34bc23

Gulyas, A. (2021). Local news deserts. In D. Harte & R. Matthews (Eds.), *Reappraising local and community news in the UK* (pp. 16–28). Routledge.

Jenkins, J., & Kleis Nielsen, R. (2020). Proximity, public service, and popularity: A Comparative study of how local journalists view quality news. *Journalism Studies*, *21*(2), 236–253. https://doi.org/10.1080/1461670X.2019.1636704

Jerónimo, P., Ramos, G., & Torre, L. (2022). *Desertos de notícias Europa 2022: Relatório de Portugal* [News deserts Europe 2022: Portugal report]. Labcom Communication & Arts.

Lins da Silva, C. E., & Pimenta, A. (2020). Local news deserts in Brazil: Historical and contemporary perspectives. In A. Gulyas & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 44–53). Routledge.

Macià Mercadé, J. (1993). *La comunicación regional y local: Dinámica de la estructura de la información en la España de las autonomías* [Regional and local communication: Dynamics of the informational structure in the Spain of the autonomous regions]. Ciencia 3.

Matherly, T., & Greenwood, B. N. (2021). *No news is bad news: Political corruption, news deserts, and the decline of the fourth estate*. Proceedings of the National Academy of Sciences. https://questromworld.bu.edu/platformstrategy/wp-content/uploads/sites/49/2021/07/PlatStrat2021_paper_1.pdf

Mathews, N. (2022). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265. https://doi.org/10.1177/1464884920957885

Mathews, N., & Ali, C. (2022). Desert work: Life and labor in a news and broadband desert. *Mass Communication and Society*. Advance online publication. https://doi.org/10.1080/15205436.2022.2093749

Miller, J. (2018). News deserts: No news is bad news. In W. J. Bratton, S. Elde, S. Goldsmith, M. Hendrix, H. Husock, J. Miller, J. Murad, A. M. Renn, & P. D. Salins (Eds.), *Urban policy 2018* (pp. 59–76). Manhattan Institute for Policy Research. https://media4.manhattan-institute.org/sites/default/files/MI_Urban_Policy_2018.pdf

Ministerio de Política Territorial y Función Pública. (2019). *Estrategia nacional frente al reto demográfico. Directrices generales* [National strategy to face the demographic challenge. General guidelines]. https://www.miteco.gob.es/es/reto-demografico/temas/directricesgeneralesenfrd_tcm30-517765.pdf

Napoli, P. M., Weber, M. S., McCollough, K., & Wang, Q. (2018). *Assessing local journalism: News deserts, journalism divides, and the determinants of the robustness of local news*. DeWitt Wallace Center for Media & Democracy. https://dewitt.sanford.duke.edu/assessing-news-media-infrastructure-report-released

Negredo Bruna, S., & Martínez-Costa, M. P. (2021). Tipos de medios nativos digitales: Plataformas, alcance geográfico, lenguas y grupos empresariales [Typologies of digital native media: Platforms, geographic scope, languages and business groups]. In R. Salaverría & M. P. Martínez-Costa (Eds.), *Medios nativos digitales en España* [Digital native media in Spain] (pp. 35–54). Comunicación Social Ediciones y Publicaciones.

Negredo Bruna, S., Martínez-Costa, M. P., Breiner, J., & Salaverría, R. (2020). Journalism expands in spite of the crisis: Digital-native news media in Spain. *Media and Communication*, *8*(2), 73–85. https://doi.org/10.17645/mac.v8i2.2738

Negreira-Rey, M. C. (2020). Cibermedios locais e hiperlocais en España: Mapa, modelos e produción informativa [Local and hyperlocal online media in Spain: Map, models and news production] [Unpublished doctoral thesis]. University of Santiago de Compostela. http://hdl.handle.net/10347/24117

Negreira-Rey, M. C. (2021). Distribución geográfica de los medios nativos digitales [Geographic distribution of digital native media]. In R. Salaverría & M. P. Martínez-Costa (Eds.), *Medios nativos digitales en España* [Digital native media in Spain] (pp. 71–82). Comunicación Social Ediciones y Publicaciones.

Negreira-Rey, M. C., López-García, X., & Vázquez-Herrero, J. (2020). Mapa y características de los cibermedios locales e hiperlocales en España [Map and characteristics of local and hyperlocal digital media in Spain]. *Revista de Comunicación*, *19*(2), 193–214. http://doi.org/10.26441/rc19.2-2020-a11

Rodríguez-Rejas, M. J., & Díez-Gutiérrez, E. (2021). Territorios en disputa: Un estudio de caso en la España vaciada [Disputed territories: A case study in rural emptied Spain]. *Ciudad y territorio. Estudios territoriales*, *53*(208), 371–390. https://doi.org/10.37230/CyTET.2021.208.05

Sáez Pérez, L. A. (2021). Análisis de la estrategia nacional frente a la despoblación en el reto demográfico en España. Ager [Analysis of the national strategy against depopulation in the demographic challenge in Spain]. *Revista de Estudios sobre Despoblación y Desarrollo Rural*, *33*, 7–34. https://doi.org/10.4422/ager.2021.18

Salaverría Aliaga, R. (2005). *Cibermedios. El impacto de internet en los medios de comunicación en España* [Cybermedia. The impact of the internet on the media in Spain]. Comunicación Social.

Salaverría Aliaga, R., Martínez-Costa, M. P., & Breiner, J. (2018). Map of digital news media at Spain in 2018: Quantitative analysis. *Revista Latina de Comunicación Social*, *73*, 1034–1053. https://doi.org/10.4185/RLCS-2018-1295

Sanz Hernando, C. (2017). La migración digital y la crítica situación de la prensa y televisión marcan

el ecosistema informativo de Castilla y León [The shift towards digital media and the critical state of press and television set the information ecosystem of Castile and Leon]. *Miguel Hernández Communication Journal*, *8*, 617–642. https://doi.org/10.21134/mhcj.v0i8.213

Segura Anaya, A., de Sola Pueyo, J., Iniesta Alemán, I., & Mancho de la Iglesia, A. (2020). Redes sociales de la información periodística de proximidad en las zonas despobladas: El caso de los medios digitales hiperlocales de Aragón [Social networks of journalistic inform-ation of proximity in depopulated areas: The case of hyperlocal digital media in Aragon]. *Textual & Visual Media*, *13*, 35–57.

Smethers, J. S., Mwangi, S. C., & Bressers, B. (2021). Signal interruption in Baldwin City: Filling a communication vacuum in a small town "news desert." *Newspaper Research Journal*, *42*(3), 379–396. https://doi.org/10.1177/07395329211030687

Wadbring, I., & Bergström, A. (2017). A print crisis or a local crisis? *Journalism Studies*, *18*(2), 175–190. https://doi.org/10.1080/1461670X.2015.1042988

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Article

The Geography of Newspaper Circulations: A Spatial Taxonomy of "News(Paper) Deserts" in the United States

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Abstract
Using the newspaper circulation data collected through the Alliance for Audited Media (n = 1,925 across five years), this study provides the first empirical spatial analysis of newspaper circulation in the US, employing the theoretical framework of communication geography and the analytical tool of spatial econometrics. From 2018 to 2022, a steady decline (at an average of 24.1% per year) in newspaper circulation was observed in most of the counties in the dataset, after controlling for spatial and temporal random effects. A positive and significant spatial autocorrelation was found across the US. The local indicators of spatial association results identified four types of spatial clusters that offer a more nuanced understanding of the local spatial distribution of newspaper circulation: news deserts, news oases, news islands, and the fringe of news deserts. The study also used Bayesian spatiotemporal modeling to pinpoint the regions that are more sensitive to the spatial structure regarding the decline of newspaper circulation.

Issue
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1. Introduction

Despite the ongoing digitization of the news industry, print media (i.e., newspapers and magazines) remain an essential part of the news landscape in the US. Moving beyond the "death of print" narrative, O'Sullivan et al. (2017) contended that the materiality of the printed newspaper could encourage more social interactions and encounters with audiences. Although some scholars argue about the displacement effect of digital media on print media, others suggest that there could be a potential complementary relationship between these two types of media outlets (Gentzkow, 2007; Jang & Park, 2016). Meanwhile, some media outlets have attempted to shift from print to online media to combat the growing threat of "post-print obscurity" for newspapers across the globe (Thurman & Fletcher, 2018). However, Chyi and Tenenboim's (2017) longitudinal study revealed that the majority of these newspapers suffer from their unsuccessful transition, with the printed edition remaining the

core product in the local market. As noted by O'Sullivan et al. (2017), newspapers persist in their efforts to innovate by themselves or reap the benefits of innovations by the innovation of other information commodities. In a recent study conducted by Finneman et al. (2023) in North Dakota, South Dakota, Nebraska, and Kansas, their findings indicated that rural readers in America still favor print subscriptions (51.9%) over digital subscriptions (35%) as a means of supporting the revenue stream of rural newspapers. Therefore, print media are still vital, especially for information access in local and rural communities, where they can generate and maintain a sense of locality (Mathews, 2022).

The declining trend in daily newspaper circulation is not a recent development. As Chittum (2014) has pointed out, based on the data from the Newspaper Association of America, newspaper circulation has steadily declined since 1984, well before the advent of digital transformation. Furthermore, its declining pace even accelerated from 2003 to 2009 at the country level

(Chittum, 2014). According to Abernathy (2020), 25% of newspapers in the US have vanished since 2004, resulting in 1,800 communities that had a news outlet in 2004 having none by 2020, becoming "news deserts." Amongst the 3,143 counties in the US, two-thirds have no daily newspaper while 225 of those counties lack any type of news outlet at all (Abernathy, 2020). Abernathy (2018, p. 16) expanded on the original definition of news deserts, which referred to "a community without a local newspaper," by introducing a broader definition that includes any community where residents experience significantly reduced access to important news and information that sustains grassroots democracy and democratic governance. To clarify, the news deserts in this article refer specifically to the absence of newspapers, as the "newspaper deserts."

While there has been a substantial amount of research on the impact of news deserts on local/community journalism, information access, and community health (Ferrucci & Alaimo, 2020; Mathews, 2022; Smethers et al., 2021), the spatial dimension has been long overlooked in the literature despite the term "desert" in its name. Nonetheless, the concept of space or geography plays a crucial role in local journalism and newspaper, as it underpins the community-centric coverages while providing locative and contextual perspectives (Mersey, 2009). The University of North Carolina at Chapel Hill and Ohio University (the Media Deserts Project) teams have done a tremendous job in mapping out the news deserts in the US (Abernathy, 2020; Ferrier et al., 2016). However, to the best of the author's knowledge, previous studies have not yet undertaken a quantitative analysis of the spatial aspects of news deserts, which is the primary objective of this study. By including a spatial dimension, as considering the spatial feedback from the neighboring geographical units, this study strives to transcend the binary measurement and to develop a more nuanced identification of news deserts. The observation of distinct spatial patterns can provide valuable insights that can guide policymakers in tailoring interventions specific to the taxonomy of news deserts. Furthermore, by acknowledging the influence of spatial structure, the study seeks to provide a more accurate estimation of macro-level newspaper circulation trends. Leveraging the tool of spatial econometrics, the first part of this study investigates the spatial distribution of local newspaper circulation, aiming to identify areas characterized by spatial inequality and uneven access to local news and information. Subsequently, Bayesian spatiotemporal modeling is utilized to delineate the spatial and temporal effects locally. In other words, it seeks to discern how the spatial (and temporal) random effects differ across the geographical units in the study region. In sum, we would like to provide a comprehensive understanding of the spatiality of local newspaper circulation as well as the spatial inequality of news access, filling the gap in the news deserts scholarship.

2. Related Literature

2.1. The Demise of the Local Printed Newspaper in the US

As a long-standing, central fixture in communities, local newspapers serve both social and informational functions. In Berelson's (1949) landmark investigation on newspapers, he identified the types of uses and gratifications of newspaper consumption, including seeking information about current events, using newspapers as a daily guide, as a reprieve from personal responsibilities, attaining or displaying social status, utilizing it as a means of social contact to bridge common morality, and adopting it as a habitual practice. As he asserted, newspapers have the role of safeguarding communities by providing residents with a sense of reassurance to combat pervasive feelings of insecurity and anomie. Amongst 100 randomly selected communities across the US, Mahone et al. (2019) discovered that local newspapers, which only make up 25% of media outlets in the market, cover more than 60% of the local news stories. Local newspapers are the most effective medium for delivering public service journalism and addressing the critical information needs in the community, outperforming other types of media outlets, such as local television, radio, and digital-only news websites (Federal Communications Commission, 2011; Mahone et al., 2019). For instance, a lack of local newspaper coverage can contribute to deficits in health knowledge. Public health experts use news stories in local papers to achieve infectious disease threat communication objectives, which are critical in increasing public awareness and reaching specific groups (Jin et al., 2019). During the Covid-19 pandemic, 57% of counties with Covid-19 cases did not have access to a daily local newspaper, leaving these communities at risk of insufficient news coverage and potentially exacerbating their vulnerability to the pandemic (Hendrickson, 2020).

The dramatic decline in circulation and coverage of local news sources has both short-term and long-term democratic consequences in civic engagement (Hayes & Lawless, 2018; Schulhofer-Wohl & Garrido, 2013; Shaker, 2014). As local newspapers play a significant role in attaining local political knowledge, promoting community advocacy, and informing public policy decision-making, their demise undermines the sense of community and public trust in democracy at all levels (Barthel et al., 2016; Hayes & Lawless, 2015; Mathews, 2022; Shaker, 2009). Many of these communities have lost their access to a local newspaper and have no reliable sources of local and regional news on topics such as politics, economics, and the environment (Abernathy, 2014). Residents living in news deserts are typically less informed about important issues in their community, and, therefore, are less likely to participate in local elections (Filla & Johnson, 2010; Hamilton & Morgan, 2018). Meanwhile, Darr et al. (2018) detected a causal effect in the decline of split-ticket voting across votes

for the presidency and the US Senate for the communities where newspaper closure occurred. Nonetheless, they posited that the increase in polarized voting is attributed to partisan heuristics resulting from an augmented dependence and exposure to national media, rather than a general loss of political information. Also, in a Kentucky case study, the closure of *The Cincinnati Post* resulted in decreased competitiveness in local elections and a depressed effect on voting turnout has endured for multiple years (Schulhofer-Wohl & Garrido, 2013). Moving beyond the circulation, the findings by Hayes and Lawless (2018) indicated that regions with lower coverage of congressional campaigns were linked to a lower level of voter turnout and political knowledge amongst a representative sample of Americans. Focusing on 11 local newspapers in California, Rubado and Jennings (2020) found that the municipalities served by newspapers with significant decreases in newsroom staffing experienced a reduction in political competition as well as voter turnout during mayoral races. In a special report released by *POLITICO*, it was found that during the 2016 US presidential election, former President Donald Trump outperformed in the areas that lacked traditional news outlets (Musgrave & Nussbaum, 2018). Additionally, concerning other potential political consequences, Matherly and Greenwood (2022) demonstrated that the closure of newspapers results in a substantial increase in political corruption within the districts those newspapers once served. They highlighted the agenda-setting function of newspapers as a possible mechanism underlying this effect. It was found that the rise of online news vendors fails to alleviate the situation and there was no replacement effect between newspapers and their digital counterparts in this particular case.

2.2. Re-Spacing Place in "News Deserts"

Spatial journalism, as defined by Schmitz Weiss (2015, p. 125), is the integration of "a place, space, and/or location into the process and practice of journalism." In recent years, scholarly research in journalism has delved into the role of emerging technologies in enhancing news narratives and empowering users by fostering a sense of presence within the virtual and augmented space (Kukkakorpi & Pantti, 2021; Papacharissi, 2015; Wu, 2022). However, until now, communication and journalism scholars have largely neglected the physical aspect of spatial dimensions when studying news deserts. Papacharissi (2015) discusses the concept of "space" in a hybrid model of digital journalism in the new age, and her analysis emphasizes social media and digital platforms rather than the physical space. But the related but distinct concept of "place" is not unfamiliar in journalism research. Journalism research and practice have a longstanding tradition of analyzing how places are portrayed and perceived through the use of maps and cartography, as part of a place-making process that aims to illustrate contextual narratives to the audience (Gutsche

& Hess, 2020). Usher has called for putting "place" in the core of journalism research, as the journalistic practice could have the professional power control or cultural authority over the domain of "where," through the "act of place-making" in news production (Usher, 2019, p. 85; see also Usher, 2021). As argued by Leupold et al. (2018), the concept of social cohesion in an urban setting is intricately tied to the communication channels that exist within it. Specifically, local journalism plays a critical role in shaping the image of social cohesion in a city and establishing a sense of place-based identity, serving as an informational backbone through which individuals gain insight into the social fabric of their community. Nevertheless, we seldom formally put the news ecosystem or the information infrastructure into space, until recent scholars start to advocate for a *spatial turn* in communication and media studies (Waldherr et al., 2021).

Harrison and Dourish (1996) highlighted the critical differences between "place" and "space" in the mediated collaborative system. In particular, they considered space as a natural entity of the properties that define "the essential reality of setting of action," and place as a social product, as a set of understanding (Dourish, 2006, p. 300). Goodchild and Janelle (2010, p. 6) argued that space is the fundamental linkage between virtual and geographical processes, and that place is a social context that is embedded with social advantages and disadvantages. In human geography literature, as Adams and Jansson (2012) pointed out, place is a concept capturing the subjective experience produced in the local environment and dialogue, and space indicates the potential and actual movements of different entities, such as humans, goods, and information. The subfield of *communication geography*, also known as *spatial communication*, has emerged as a means of building an epistemological and ontological bridge between the disciplines of journalism studies and human geography (Adams & Jansson, 2012; Jansson & Falkheimer, 2006). Adams further proposed a quadrant taxonomical framework of communication geography: places and spaces in media/communication, as well as media/communication in places and spaces (Adams, 2011; Adams & Jansson, 2012). However, as an evolving cross-disciplinary subfield, Adams and Jansson did not provide an empirical examination, particularly from a quantitative approach. We argue that media consumption could be "situated, localized, and specialized" in space (Rodríguez-Amat & Brantner, 2016, p. 1041). Therefore, the spatiality of newspaper circulation, which can be classified as media/communication in spaces, should be examined as an essential part of the journalistic infrastructure of a local community (Napoli et al., 2017).

As Mersey (2009) pointed out, even in today's media landscape, where online media consumption is more prevalent and convenient, individuals still possess a stronger geographic sense of community when reading news articles covering a particular geographic area, irrespective of their level of online engagement. This highlights the enduring relevance of physical geography

in today's news ecosystem and therefore emphasizes the necessity of our study. In this article, we advocate for a spatial awareness of the news ecosystem and information infrastructure in the local community, in contrast to the place-based approach in the past scholarship, which centers on a particular locale within the geographic and material setting of news. Meanwhile, previous journalism literature predominantly employed abstract representations of space, such as institutional or mediated space (Pan, 2000; Reese, 2016), whereas our focus is on the tangible presence and geographical patterns of local newspaper circulation. This study sheds light on offering the very first empirical analysis of the spatial embeddedness of newspaper circulation in the US context, filling a gap in the existing literature. Specifically, our analysis reveals how the spatial patterns of newspaper circulation in the US are shaped globally and locally. We also contend that the decline in newspaper circulation is not limited to a single geographic unit at a one-time point but is intertwined and interdependent with the spatial and temporal structure. Thus, we have formulated three research questions that we seek to answer:

RQ1: What is the global spatial distribution of newspaper circulation at the county level in the US?
RQ2: What is the local spatial pattern of newspaper circulation at the county level in the US?
RQ3: Is newspaper circulation at the county level in the US sensitive to (a) spatial structure and/or (b) temporal structure?

3. Method

3.1. Data Collection

Unlike the previous approach of the University of North Carolina at Chapel Hill team that mainly used a binary *have/have-not* measure (whether a county has at least one newspaper or none at all), we employed a continuous measurement to investigate the nuances of newspaper circulation. In particular, we utilize the audited database compiled by the Alliance for Audited Media, a non-profit industry organization established in 1914 by the Association of National Advertisers to ensure reliable and impartial reporting of media metrics that allow for accurate evaluation and comparison of media performance. The Alliance for Audited Media dataset comprises 1,070 newspapers in the US, which has been widely used by journalism scholars (Chyi & Ng, 2020; Rubado & Jennings, 2020). To account for newspapers with distribution beyond their publishers' geographic location, we have collected circulation data for each newspaper in every county and aggregated it at the county level. Due to data limitations, we could only access the audited data in the news media statement from 2018 to 2022. The number of counties with audited data from 2018 to 2022 is 2,408, 2,359, 2,306, 2,209, and 1,950 respectively. The data from Alaska and Hawaii

are excluded since they are not geographically contiguous with the rest of the states. In order to perform the spatiotemporal modeling in the last part of the analysis, only 1,925 counties (in 47 states and the District of Columbia) that contain circulation data across five continuous years are retained in the final dataset. We are missing data from a huge area in the Mountain West (Idaho, Wyoming, Utah, and Colorado), the west side of the Great Plains (North Dakota, South Dakota, Nebraska, and Kansas), New Mexico, and West Virginia. Despite its limitations, Alliance for Audited Media data still offers broad coverage across the contiguous US and provides fine-grained data at the county level. Figure 1 shows the distribution density plot of the average newspaper circulation of each state in each year. Only the data from 48 states are shown in Figure 1 for visualization purposes, as the data on the District of Columbia is an outlier compared to the rest of the states. More detail of audited data aggregated at the county level in each state could be found in Supplementary File.

3.2. Data Analysis

To descriptively investigate the spatial patterns of newspaper circulation in the US, we first compute an index to capture the percentage of newspaper circulation change from 2018 to 2022 following Equation 1:

$$\Delta y\% = \frac{y_{2022} - y_{2018}}{y_{2018}} * 100\% \qquad (1)$$

Moving toward the spatial analysis in the later part, we choose the absolute difference of newspaper circulation for spatial analysis ($\Delta y = y_{2022} - y_{2018}$) and employ a Rook's continuity to construct our spatial weight matrix to define the neighbor list for each county. The typical continuity-based neighborhood structure includes Queen's criterion (when neighbors share boundaries or vertices) and Rook's criterion of continuity (when neighbors only share boundaries). In this case, the Queen's and the Rook's continuity both yield similar results of Moran's I (0.373 and 0.375). Following the traditions of exploratory data spatial analysis, we pick the slightly higher Moran's I here.

3.2.1. Global Spatial Autocorrelation

In order to incorporate the spatial dimension of newspaper circulation into the modeling process, we have drawn upon a series of spatial concepts and analytical strategies in spatial econometrics. As stated by Tobler (1970, p. 236): "Everything is related to everything else, but near things are more related than distant things." One key concept that reflects the relationship between nearby spatial units is *spatial autocorrelation* (Getis, 2010). To quantify and visualize spatial autocorrelation, geographers typically use global measures such as Moran's I, which provides a statistical metric that describes spatial autocorrelation on a global level.
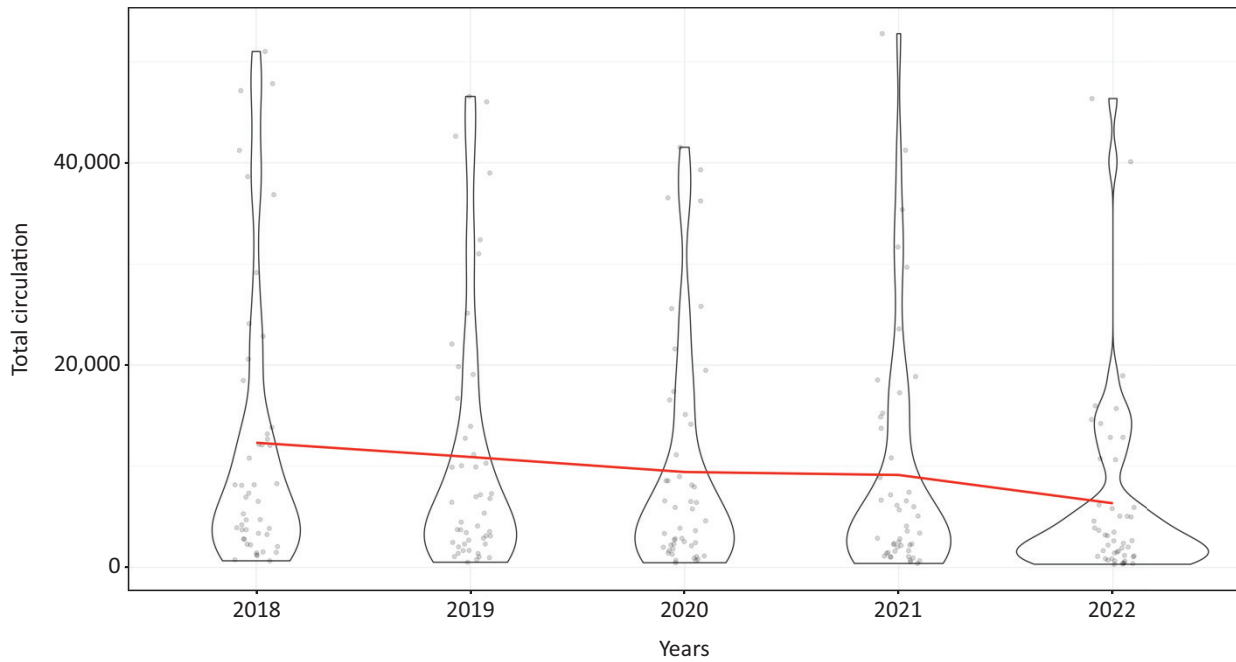
Figure 1. The newspaper circulation distribution in the US (2018–2022). Note: $n = 47$ states, excluding the District of Columbia.

Moran's I can be specified as follows, where N indicates the number of spatial units indexed by i and j, w_{ij} indicates the spatial weight matrix, and $W = \sum_{i=1}^{n} \sum_{j=1}^{n} w_{ij}$, indicating the sum of all w_{ij}:

$$I = \frac{N}{W} \frac{\sum_{i=1}^{n} \sum_{j=1}^{n} w_{ij}(x_i - \overline{x})(x_j - \overline{x})}{\sum_{i=1}^{n} (x_i - \overline{x})^2} \qquad (2)$$

Similar to regular correlation coefficients in non-spatial modeling, the values of Moran's I range from –1 to 1. Positive spatial autocorrelation occurs when Moran's I value is close to 1, indicating that values of interest are clustered together and are not independent. In other words, if spatial units are closer together, their values are more similar. In contrast, a Moran's I value of –1 indicates negative spatial autocorrelation, where dissimilar or dispersed values are located next to each other. Thus, when spatial units are closer together, their values are less similar. A Moran's I value of zero suggests no spatial autocorrelation, meaning that values of nearby spatial units are randomly associated.

3.2.2. Local Indicators of Spatial Association

In addition to the global measure of spatial autocorrelation above, Anselin (1995) introduced local indicators of spatial association (LISA) to quantify the contributions of each location to the global index. By utilizing LISA, we can better discern the spatial association between the value of a variable of interest at a given location and its neighboring units. The local tests can facilitate the identification of where the statistically significant relationship (of neighborhood and distance) may diminish (Ord & Getis,

2001). And the local Moran's I at unit i can be defined as follows, where z_i indicates the variable x in unit i in the standardized form as $(x_i - \overline{x})/SD_x$ and w_{ij} indicates the spatial weight matrix:

$$I_i = z_i \sum_j w_{ij} z_j \qquad (3)$$

The interpretation of local Moran's I is analogous to its global counterpart. Based on the local measure, Anselin (1995) further provided additional details on the local spatial clusters, which are the contiguous geographical units that exhibit significant local indicators of spatial association corresponding to representative confidence intervals in frequentist statistics (Grubesic, 2006): high-high, low-low, low-high, and high-low.

3.2.3. Bayesian Spatiotemporal Modeling

Although the current study is not interested in the determinants (i.e., demographic or socio-economic factors) which might influence the changes in newspaper circulation in the US, we employ a Bayesian spatiotemporal modeling framework to investigate the spatial and temporal patterns of the changes in newspaper circulation, while accounting for the potential bias introduced by the spatial or temporal patterns. A Bayesian framework for spatial or spatiotemporal modeling would be well-suited for dealing with count data with a negative binomial distribution like our dataset. In particular, we use an integrated nested Laplace approximation (INLA) approach in the R-INLA package to attain the Bayesian estimates in spatial modeling (Rue et al., 2009). Compared to the common approach to performing Bayesian inference

like Markov chain Monte Carlo, INLA is computationally much less expensive while obtaining robust and comparative performance in spatial and spatiotemporal modeling (Blangiardo & Cameletti, 2015). In the analytical section, we explore three types of model specifications: (a) only incorporating the independent and identically distributed (IID) component, as the IID model; (b) incorporating both the IID component and the spatial component, as the Besag–York–Mollié model; (c) incorporating the IID component, spatial component as well as the parametric temporal component. Specifically, we use the deviance information criterion (DIC) and Watanabe–Akaike information criterion (WAIC), to compare the models and decide the best model, as normally a model with a lower DIC and WAIC will be preferred. And it could be specified as follows, with $\eta_{it} = b_0 + \mu_i + \upsilon_i + \left(\beta + \delta_i\right) \times t$:

$$y_{it} = NB\left(\lambda_{it}\right); \; \lambda_{it} = E_{it}\,\rho_{it} \qquad (4)$$

$$\log \rho_{it} = \eta_{it}$$

Here, b_0 indicates the intercept to quantify the average newspaper circulation, μ_i indicates a location-specific effect, υ_i indicates a spatial-structured effect, β indicates the main linear dynamic trend or the global time effect, and δ_i indicates a differential trend, as identifying the interaction between time and space.

4. Results

First, we present the changes in newspaper circulation at the county level in the US from 2018 to 2022, as shown in Figure 2. Most of the counties in the dataset have experienced a decline in newspaper circulation with only 27 counties showing a positive change, such as Guadalupe County and McLennan County in Texas with around a four-times increase. Conversely, 117 counties across the nation have lost more than 70% of their newspaper circulation compared to 2018, as indicated by the darker red regions in Figure 2.

The univariate Moran's *I* test of the change in newspaper circulation is 0.375, which is statistically significant under the Monte-Carlo simulation with randomization of 999 permutations (pseudo-*p*-value < 0.001), indicating a positive spatial autocorrelation across the nation. Therefore, the global spatial distribution of newspaper circulation is not uniform in the study region (RQ1). Furthermore, based on the results of LISA presented in the cluster map (see Figure 3; the significance map can be found in the Supplementary File), we identify the local spatial structured pattern of newspaper circulation in the US (RQ2). In the context of this study, these local clusters could be classified as follows (for an illustration of each type of spatial taxonomy, see Figure 4): (a) high-high or the "news deserts," (b) low-low or the "news oases," (c) low-high or the "news islands," and (d) high-low or the "fringe of news deserts."

High-high or the "news deserts" are counties with a high decline in newspaper circulation surrounded by other counties with a high decline. These 203 counties represent the greatest level of newspaper decline in the nation, and they main locate in (a) Southern America (Alabama, Arkansas, Georgia, Louisiana, Mississippi, and Texas) and (b) Midwestern America (Illinois, Indiana, Iowa, Kentucky, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota).
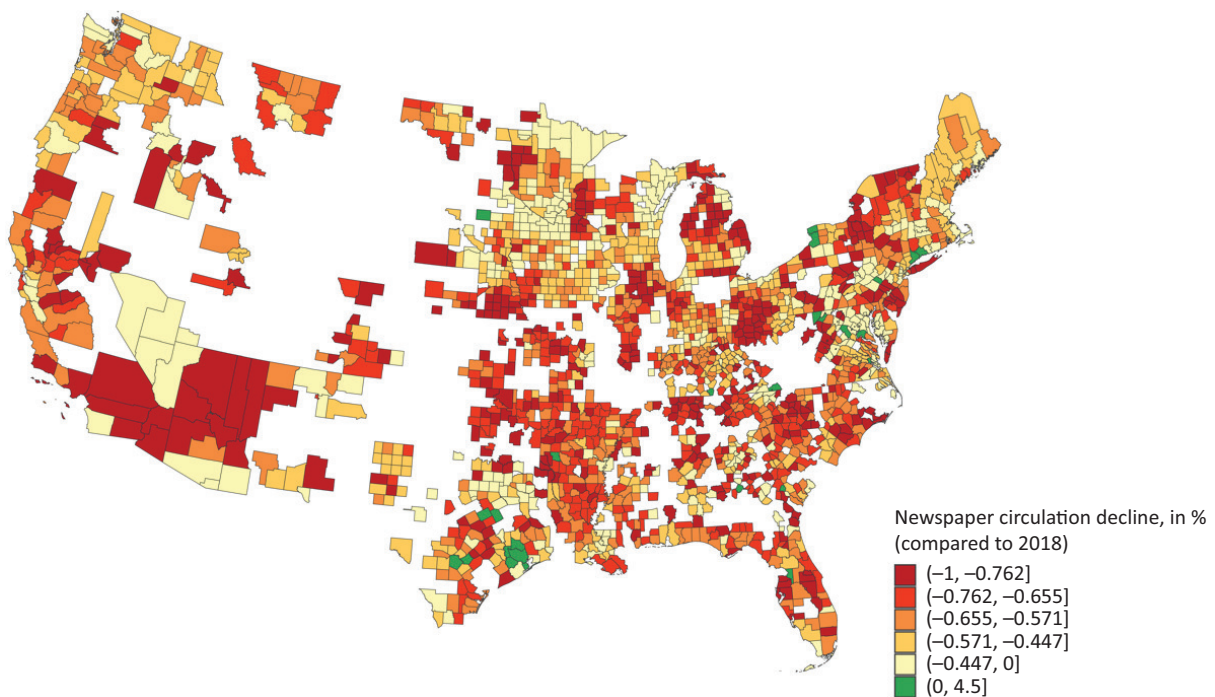
Figure 2. The newspaper circulation changes in the US (2018–2022).

Low-low or the "news oases" are counties with a low decline in newspaper circulation surrounded by other counties with a low decline. These 122 counties suffer less from the national decline of newspaper circulation compared to the rest of the country, and they are mainly situated in northeastern/mid-Atlantic states (Massachusetts, New Jersey, New York, and Pennsylvania, as well as the District of Columbia) and other coastal states (California, Florida, and Maryland).

Low-high or the "news islands" are counties with a low decline in newspaper circulation surrounded by other counties with a high decline. Only three counties are categorized in this cluster (Litchfield County in Connecticut, Dutchess County in New York, and Brazoria Count in Texas) and they are found adjacent to or inside of the core of news deserts; there is relatively more access to local news compared to adjacent counties, although not as much as the news oases.
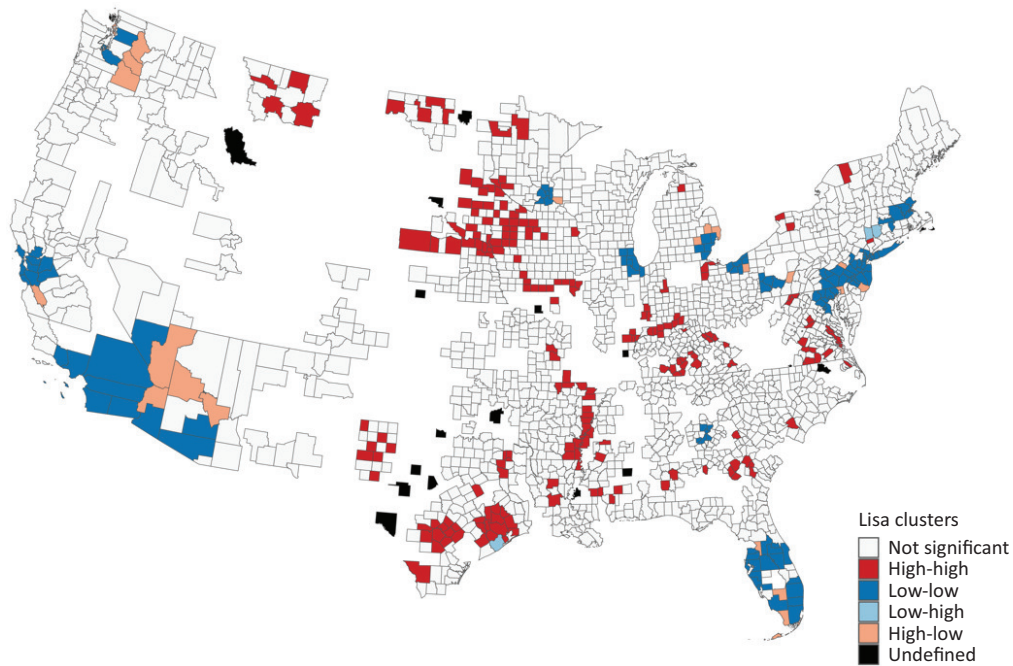
Figure 3. The LISA cluster map of newspaper circulation changes in the US (2018–2022).
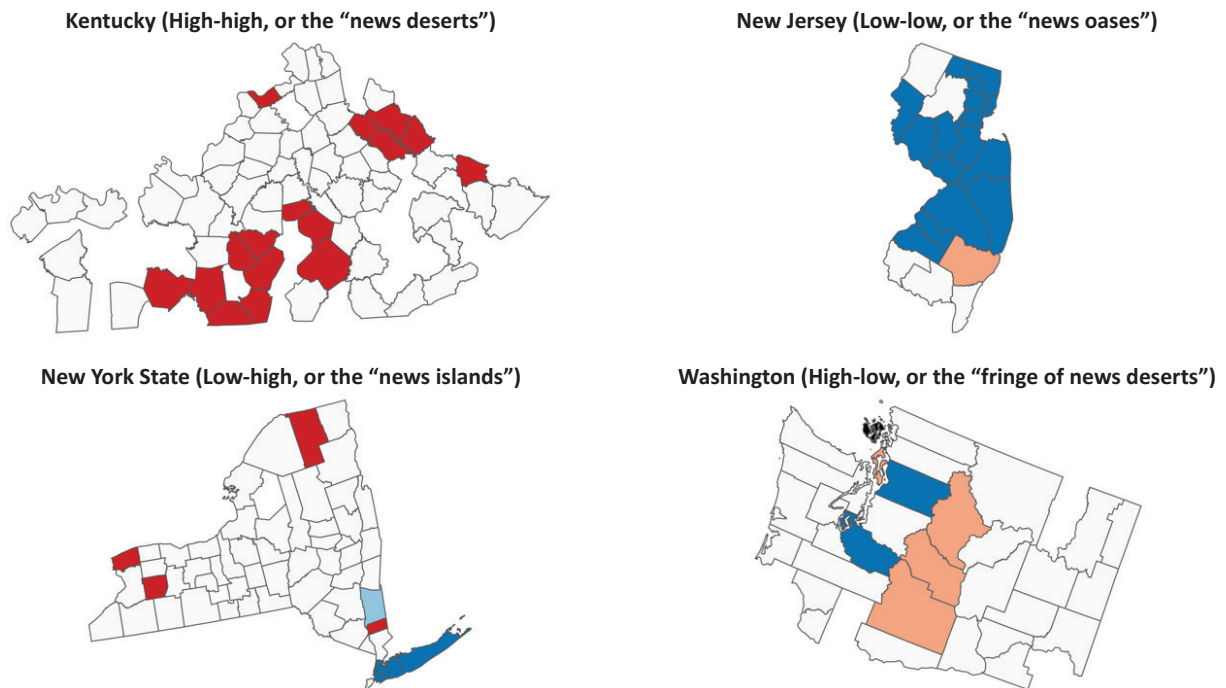
Figure 4. The illustration of the four types of spatial taxonomies of "news deserts."

High-low or the "fringe of news deserts" are counties with a high decline in newspaper circulation surrounded by other counties with a low value. Although the 22 counties are suffering a decline in newspaper circulation, they are on the edge of areas with relatively higher access to local news and not in the core of news deserts.

Lastly, we aim to investigate whether the distribution of newspaper circulation at the county level is sensitive to the spatial and temporal structure using a Bayesian framework (RQ3). Given the limited bandwidth of the dataset's timeline, we decided to use a parametric space-time model as Equation 3 presents, using the newspaper circulation data for each county in each year (1,925 counties × 5 years). Additionally, we incorporated the variable of the *year* to account for the global time effect (or the fixed effect). As presented in Table 1, we decided that Model 3, which includes both spatial and temporal structured random effect, was the best fit for our dataset since it renders the lowest DIC and WAIC values. Our analysis through the spatiotemporal model revealed that newspaper circulation in the US decreased by an average of 24.1% per year since 2018, as illustrated in Figure 5, which visualizes the posterior mean for the global time effect with its 95% credible region.

To further unpack the local patterns, we obtained the posterior mean of the spatial effect and the differential temporal effect as seen in Figures 6a and 6b. The blue areas in Figure 6a, which represent the positive values of spatial effect, are more likely to be influenced by their neighboring counties. They are primarily in the northeastern region (New York, New Jersey, Pennsylvania, Connecticut, Massachusetts, Rhode Island, New Hampshire, and Maine), Florida, the west coastal region (e.g., California and Washington), as well as the Lake Michigan region (e.g., Wisconsin, Illinois, Indiana, and Michigan). The spatial structure among the counties is crucial in explaining the spatial distribution of newspaper circulation in the US and we can find the high spatially correlated variance in our dataset. On the other hand, we also observed a higher differential temporal trend than the average in the northeastern region and the midwestern region (e.g., Wisconsin, Minnesota, Iowa, and Indiana), as depicted by the blue areas in Figure 6b. These areas may be more vulnerable to the newspaper decline as time passes.

5. Discussion and Conclusion

This study is the first empirical analysis of the spatial patterns of newspaper circulation (or the news deserts) in the US context, utilizing the theoretical framework of communication geography to put print media into spaces. From 2018 to 2022, a steady decline in newspaper circulation is observed in most of the counties in the dataset, with a few exceptions. The findings confirm a positive and significant autocorrelation across the US, indicating a non-uniform global spatial distribution of newspaper circulation. Meanwhile, the LISA results also identify four different spatial clusters which could provide more nuanced insights into the local geographic distribution of newspaper circulation in the US. Comparatively speaking, the 122 news oases counties, were least affected by the national decline of newspaper circulation compared to the rest of the country. Meanwhile, we should pay more attention to the other three spatial clusters: news deserts (203 counties), the fringe of news deserts (22 counties), and news islands (three counties). After accounting for the spatial (and

Table 1. The results of the Bayesian spatiotemporal modeling.

	IID model		Besag–York–Mollié model		Spatiotemporal model	
	Mean	95% CR	Mean	95% CR	Mean	95% CR
Intercept	7.515	(7.498, 7.532)	7.533	(7.473, 7.592)	7.532	(7.475, 7.589)
Year	−0.238	(−0.243, −0.233)	−0.238	(−0.243, −0.233)	−0.241	(−0.246, −0.236)
Model hyperparameters						
Overdispersion hyperparameter	8.430	(8.160, 8.711)	8.433	(8.164, 8.708)	10.037	(9.660, 10.410)
Precision for IID component	0.256	(0.240, 0.273)	0.618	(0.547, 0.695)	0.667	(0.590, 0.752)
Precision for spatial component			0.373	(0.303, 0.455)	0.377	(0.310, 0.459)
Precision for temporal component					113.399	(97.030, 131.161)
DIC	139,176.88	139,193.30	138,323.45			
WAIC	138,768.43	138,838.97	139,122.68			
Marginal log-likelihood	−73,560.57	−72,568.08	−72,436.54			
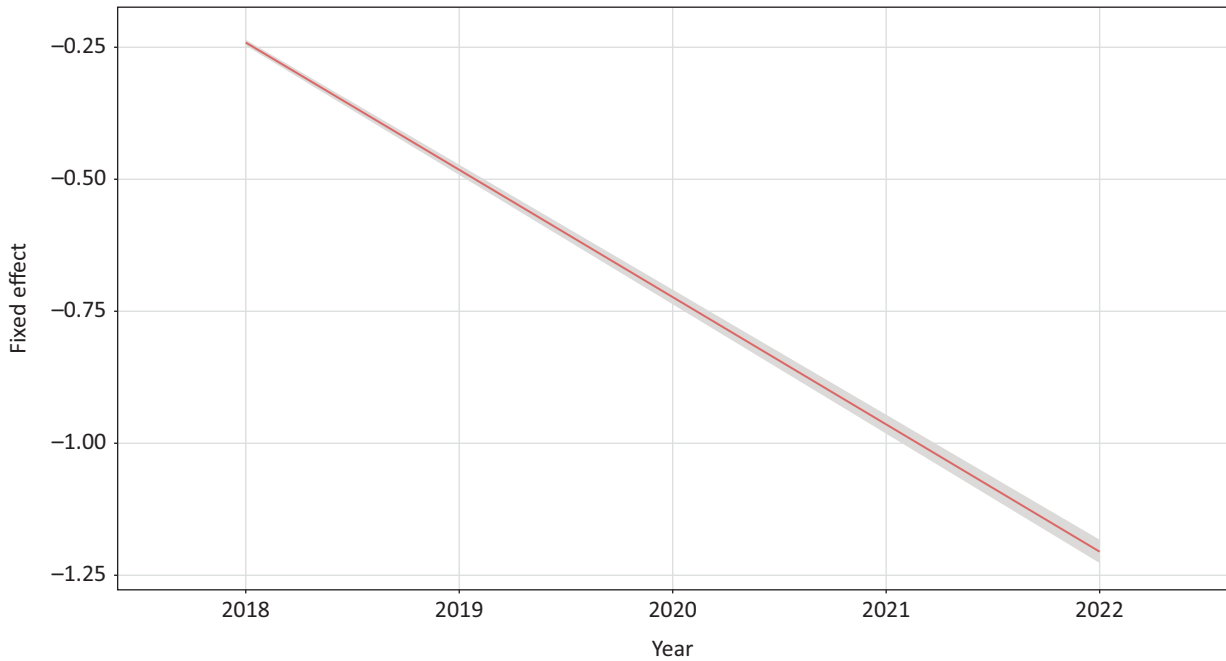
Figure 5. The global linear temporal trends of newspaper circulation in the US (2018–2022).

temporal) random effects, we are able to identify that newspaper circulation in the US has decreased by an average of 24.1% per year since 2018. We are also able to unpack which parts of the nations are more sensitive to the spatial s and temporal structure regarding the decline of newspaper circulation as shown in Figures 6a and 6b.

In this study, we address the overlooked spatial dimension of newspaper circulation and distribution, which has been a neglected aspect within both the existing research on news deserts as well as the wider field of journalism studies. In particular, it illuminates the spatial taxonomy of news deserts, surpassing the binary measurement of have/have-not, and refining the previously broad definition of the term, as pointed out by Usher (2023). Furthermore, our findings have the potential to advance current news desert mapping practices by incorporating spatial interaction among neigh-

boring geographical units, rather than treating news deserts as independent and homogeneous entities. This approach would allow for a more nuanced understanding of the complex spatial dynamics underlying the emergence of news deserts. Furthermore, the steady decline in newspaper circulation in the US over recent years is not surprising, as previous scholarship has already identified (Abernathy, 2014, 2018, 2020). However, by introducing spatial random effects as a formal method of incorporating the spatial dimension into our modeling, we were able to derive a more precise estimation of the average national decline rate in newspaper circulation. Additionally, the visualization of spatial random effect offers an additional avenue for discerning local patterns that are intricately embedded within the spatial interactions. In a formal response to the call for a spatial turn in media and communication studies (Falkheimer & Jansson, 2006; Schmitz Weiss, 2015;

Figure 6. Newspaper circulation changes in the US (2018–2022): (a) Spatial random effect and (b) temporal random effect.

Waldherr et al., 2021), we firmly assert that geography continues to hold significance within local journalistic practices. Consequently, we advocate for heightened scholarly endeavors to examine the spatial structure of the news ecosystem and information infrastructure. While the present study primarily focuses on identifying spatial clusters of newspaper circulation, we strongly encourage future research to explor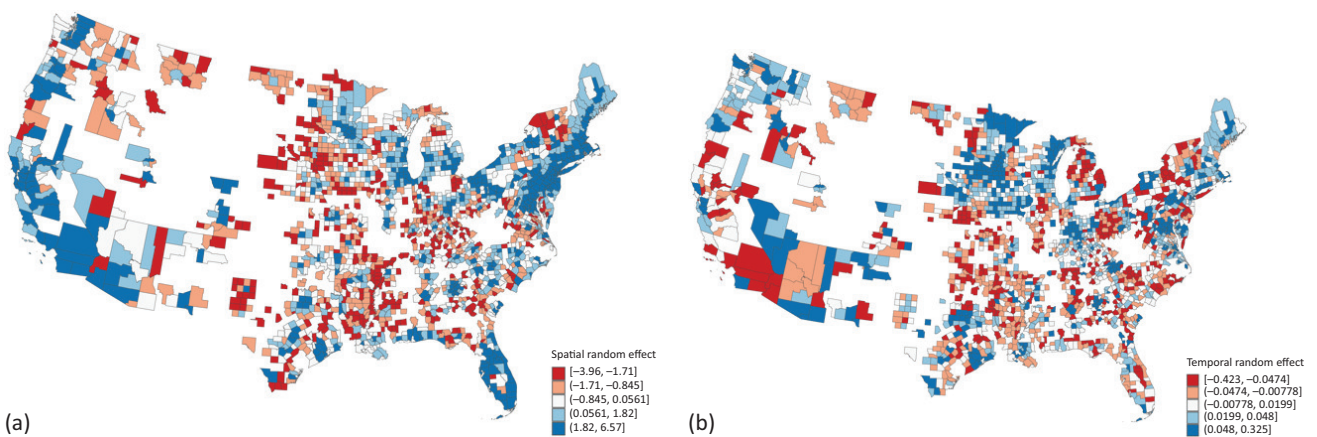e the underlying mechanisms contributing to variations in the decline of newspaper circulation across different regions. This exploration should encompass an examination of diverse factors such as demographics, socio-economic conditions, political influences, and cultural dynamics. For instance, given the interconnected nature of human behaviors across geographical boundaries, it is pertinent to investigate whether these determinants exhibit spillover effects on the emergence of news deserts, utilizing spatial Durbin models. Moreover, by adopting the framework of geographically weighted regression, which accounts for spatially varying effects on the local level, we can further unpack the spatial heterogeneity inherent in these global trends.

Drawing on Harte et al.'s (2018) notion of "news black hole," the news deserts, the fringe of news deserts, as well as the news islands are also facing the consequence of the demise of local newspapers along with the departure of local journalists, resulting in a potential loss of local community representation and democratic deficits. Democracy is inherently geographically constructed, from voting behaviors to partisan identification (Fotheringham et al., 2021; Gimpel et al., 2020). The continued decline in local newspaper circulation may worsen the spatial disparity of access to news and information, exacerbating political polarization and leading to the marginalization of particularly vulnerable communities (Darr et al., 2021). The big-sort hypothesis in political geography posits that individuals tend to cluster in communities with like-minded individuals, leading to a spatially-divided political landscape (Bishop, 2009). The lack of adequate and diverse local news sources in the news deserts, the fringe of news deserts, and the news islands could lead to the entrenchment of residents in their pre-existing political beliefs and high dependence on the nationalized media environment. This could contribute to the polarization of public opinion and potentially restrict democratic discourse (Hopkins, 2018; Martin & McCrain, 2019). Thus, the spatiality of news circulation has far-reaching implications for the functioning of democracy and the maintenance of a healthy public sphere.

The previous literature has explored potential solutions to rescue or revive local and community journalism in the news deserts, which encompass establishing novel business models such as the low-profit limited liability corporation model (Pickard, 2011), crowdfunding model (Vogt & Mitchell, 2016), non-profit model (Ferrucci, 2019), private foundation model (Scott et al., 2019), membership model (Wenzel, 2019), as well as a hybrid business model and ethical advertising (Sparviero,

2021). However, there may not be a universal solution to address the issue of news deserts on a global or even national scale. The various forms of spatial inequality identified in this article may help provide distinct policy interventions tailored to the needs and characteristics of specific communities. In the news deserts cluster which suffers the most, policymakers and media organizations should continue to support the development of local and community journalism through both public and governmental funding, grants, tax incentives, and other means (Pickard, 2020). Additionally, policymakers should ensure broadband internet access as an alternative means to improve access to digital news sources through the complementarity channel (Mathews & Ali, 2022). For the fringe of news deserts, it is essential to provide access to local news through a partnership between media organizations in their adjacent counties, which have a relatively lower risk of newspaper circulation decline. Although the news islands cluster currently has a low decline in newspaper circulation decline now, we should be cautious about the potential expansion of "desertification" from their neighbors. Despite only three counties falling into this category, it would be beneficial to conduct in-depth case studies to uncover the unique characteristics that contribute to their success and replicate their model in the neighboring counties.

While this study offers valuable insights into the local spatial patterns of newspaper circulation in the US, several limitations should be acknowledged. First of all, the definition of "news deserts" should not be limited to (printed) newspapers or magazines. The existing scholarship on news deserts has been criticized for its narrow focus on newspapers, which may fail to fully capture the current hybrid local media ecosystem, including the local television, radio talk, as well as the rise of hyperlocal journalism through online community news (Friedland et al., 2022; Harte et al., 2018; Rosenwald, 2019). We do recognize the limitation of the data analyzed by the current study, which lack the ability to capture the digitalized shift of local (printed) newspaper. In other words, the decline of printed newspapers does not necessarily equate to a loss of information, which may have been ported to digital platforms. Secondly, the operationalization of news deserts in the current study is based on the (change in) newspaper circulation, which may not fully capture the quality of information, such as the credibility and comprehensiveness of news that that vital for nourishing democracy at the grassroots level (Davis, 2019). Lastly, the data available for analysis is limited in its scope, as it could only cover the temporal trend from 2018 to 2022. In the future study, a longer time frame would be more capable to detect a non-parametric dynamic trend (i.e., random walk model), as well as the space-time interactions. Although some of the newspapers audited in the dataset have their corresponding digital editions, it is rather difficult for us to isolate any potential endogenous bias that may have been introduced by the print-digital transition if happens during the analyzed time frame being.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

References

Abernathy, P. M. (2014). *Saving community journalism: The path to profitability*. UNC Press Books.

Abernathy, P. M. (2018). *The expanding news desert*. Center for Innovation and Sustainability in Local Media. https://www.cislm.org/wp-content/uploads/2018/10/The-Expanding-News-Desert-10_14-Web.pdf

Abernathy, P. M. (2020). *News deserts and ghost newspapers: Will local news survive?* University of North Carolina Press.

Adams, P. C. (2011). A taxonomy for communication geography. *Progress in Human Geography*, *35*(1), 37–57. https://doi.org/10.1177/0309132510368451

Adams, P. C., & Jansson, A. (2012). Communication geography: A bridge between disciplines. *Communication Theory*, *22*(3), 299–318. https://doi.org/10.1111/j.1468-2885.2012.01406.x

Anselin, L. (1995). Local indicators of spatial association—LISA. *Geographical Analysis*, *27*(2), 93–115. https://doi.org/10.1111/j.1538-4632.1995.tb00338.x

Barthel, M., Holcomb, J., Mahone, J., & Mitchell, A. (2016). *Civic engagement strongly tied to local news habits*. Pew Research Center. https://assets.pewresearch.org/wp-content/uploads/sites/13/2016/11/02163924/PJ_2016.11.02_Civic-Engagement_FINAL.pdf

Berelson, B. (1949). What "missing the newspaper" means. In P. Lazarsfeld & F. Stanton (Eds.), *Communications research, 1948–1949* (pp. 111–129). Harper.

Bishop, B. (2009). *The big sort: Why the clustering of like-minded America is tearing us apart*. Houghton Mifflin Harcourt.

Blangiardo, M., & Cameletti, M. (2015). *Spatial and spatio-temporal Bayesian models with R-INLA*. Wiley.

Chittum, R. (2014, May 28). Reader revenue and the great newspaper ad bubble. *Columbia Journalism Review*. https://archives.cjr.org/the_audit/newspaper_subscription_revenue.php

Chyi, H. I., & Ng, Y. M. M. (2020). Still unwilling to pay: An empirical analysis of 50 US newspapers' digital subscription results. *Digital Journalism*, *8*(4), 526–547. https://doi.org/10.1080/21670811.2020.1732831

Chyi, H. I., & Tenenboim, O. (2017). Reality check: Multi-platform newspaper readership in the United States, 2007–2015. *Journalism Practice*, *11*(7), 798–819. https://doi.org/10.1080/17512786.2016.1208056

Darr, J. P., Hitt, M. P., & Dunaway, J. L. (2018). Newspaper closures polarize voting behavior. *Journal of Communication*, *68*(6), 1007–1028. https://doi.org/10.1093/joc/jqy051

Darr, J. P., Hitt, M. P., & Dunaway, J. L. (2021). *Home style opinion: How local newspapers can slow polarization*. Cambridge University Press. https://doi.org/10.1017/9781108950930

Davis, D. (2019, April 15). Speak your piece: In a desert, any oasis will do. *The Daily Yonder*. https://dailyyonder.com/speak-piece-desert-oasis-will/2019/04/15

Dourish, P. (2006). Re-space-ing place: "Place" and "space" ten years on. In P. Hinds & D. Martin (Eds.), *CSCW '06: Proceedings of the 2006 20th Anniversary Conference on Computer Supported Cooperative Work* (pp. 299–308). Association for Computing Machinery. https://doi.org/10.1145/1180875.1180921

Falkheimer, J., & Jansson, A. (Eds.). (2006). *Geographies of communication: The spatial turn in media studies*. Nordicom.

Federal Communications Commission. (2011). *The information needs of communities: The changing media landscape in a broadband age*. https://transition.fcc.gov/osp/inc-report/The_Information_Needs_of_Communities.pdf

Ferrier, M., Sinha, G., & Outrich, M. (2016). Media deserts: Monitoring the changing media ecosystem. In M. Lloyd & L. A. Friedland (Eds.), *The communication crisis in America, and how to fix it* (pp. 215–232). Palgrave Macmillan. https://doi.org/10.1057/978-1-349-94925-0_14

Ferrucci, P. (2019). *Making nonprofit news: Market models, influence and journalistic practice*. Routledge.

Ferrucci, P., & Alaimo, K. I. (2020). Escaping the news desert: Nonprofit news and open-system journalism organizations. *Journalism*, *21*(4), 489–506. https://doi.org/10.1177/1464884919886437

Filla, J., & Johnson, M. (2010). Local news outlets and political participation. *Urban Affairs Review*, *45*(5), 679–692. https://doi.org/10.1177/1078087409351947

Finneman, T., Ferrucci, P., & Mathews, N. (2023). Revenue & readership: Rescuing & reviving rural journalism. *Journalism Practice*. Advance online publication. https://doi.org/10.1080/17512786.2023.2183236

Fotheringham, A. S., Li, Z., & Wolf, L. J. (2021). Scale, context, and heterogeneity: A spatial analytical perspective on the 2016 US presidential election. *Annals of the American Association of Geogra-*

phers, *111*(6), 1602–1621. https://doi.org/10.1080/24694452.2020.1835459

Friedland, L. A., Shah, D. V., Wagner, M. W., Cramer, K. J., Wells, C., & Pevehouse, J. (2022). *Battleground: Asymmetric communication ecologies and the erosion of civil society in Wisconsin*. Cambridge University Press.

Gentzkow, M. (2007). Valuing new goods in a model with complementarity: Online newspapers. *American Economic Review*, *97*(3), 713–744. https://doi.org/10.1257/aer.97.3.713

Getis, A. (2010). Spatial autocorrelation. In M. M. Fischer & A. Getis (Eds.), *Handbook of applied spatial analysis* (pp. 255–278). Springer. https://doi.org/10.1007/978-3-642-03647-7_14

Gimpel, J. G., Lovin, N., Moy, B., & Reeves, A. (2020). The urban–rural gulf in American political behavior. *Political Behavior*, *42*, 1343–1368. https://doi.org/10.1007/s11109-020-09601-w

Goodchild, M. F., & Janelle, D. G. (2010). Toward critical spatial thinking in the social sciences and humanities. *GeoJournal*, *75*, 3–13. https://doi.org/10.1007/s10708-010-9340-3

Grubesic, T. H. (2006). A spatial taxonomy of broadband regions in the United States. *Information Economics and Policy*, *18*(4), 423–448. https://doi.org/10.1016/j.infoecopol.2006.05.001

Gutsche, R. E., Jr., & Hess, K. (2020). Placeification: The transformation of digital news spaces into "places" of meaning. *Digital Journalism*, *8*(5), 586–595. https://doi.org/10.1080/21670811.2020.1737557

Hamilton, J. T., & Morgan, F. (2018). Poor information: How economics affects the information lives of low-income individuals. *International Journal of Communication*, *12*, 2832–2850. https://ijoc.org/index.php/ijoc/article/view/8340/2399

Harrison, S., & Dourish, P. (1996). Re-place-ing space: The roles of place and space in collaborative systems. In G. Olson, J. Olson, & M. S. Ackerman (Eds.), *CSCW '96: Proceedings of the 1996 ACM Conference on Computer Supported Cooperative Work* (pp. 67–76). Association for Computing Machinery. https://doi.org/10.1145/240080.240193

Harte, D., Howells, R., & Williams, A. (2018). *Hyperlocal journalism: The decline of local newspapers and the rise of online community news*. Routledge.

Hayes, D., & Lawless, J. L. (2015). As local news goes, so goes citizen engagement: Media, knowledge, and participation in US House elections. *The Journal of Politics*, *77*(2), 447–462. https://doi.org/10.1086/679749

Hayes, D., & Lawless, J. L. (2018). The decline of local news and its effects: New evidence from longitudinal data. *The Journal of Politics*, *80*(1), 332–336. https://doi.org/10.1086/694105

Hendrickson, C. (2020). *Critical in a public health crisis, Covid-19 has hit local newsrooms hard*. The Brookings Institution. https://www.brookings.edu/blog/fixgov/2020/04/08/critical-in-a-public-health-crisis-covid-19-has-hit-local-newsrooms-hard

Hopkins, D. J. (2018). *The increasingly United States: How and why American political behavior nationalized*. University of Chicago Press.

Jang, S., & Park, M. (2016). Do new media substitute for old media?: A panel analysis of daily media use. *Journal of Media Economics*, *29*(2), 73–91. https://doi.org/10.1080/08997764.2016.1170021

Jansson, A., & Falkheimer, J. (2006). Towards a geography of communication. In J. Falkheimer & A. Jansson (Eds.), *Geographies of communication: The spatial turn in media studies* (pp. 7–23). Nordicom.

Jin, Y., Austin, L., Vijaykumar, S., Jun, H., & Nowak, G. (2019). Communicating about infectious disease threats: Insights from public health information officers. *Public Relations Review*, *45*(1), 167–177. https://doi.org/10.1016/j.pubrev.2018.12.003

Kukkakorpi, M., & Pantti, M. (2021). A sense of place: VR journalism and emotional engagement. *Journalism Practice*, *15*(6), 785–802. https://doi.org/10.1080/17512786.2020.1799237

Leupold, A., Klinger, U., & Jarren, O. (2018). Imagining the city: How local journalism depicts social cohesion. *Journalism Studies*, *19*(7), 960–982. https://doi.org/10.1080/1461670X.2016.1245111

Mahone, J., Wang, Q., Napoli, P., Weber, M., & McCollough, K. (2019). *Who's producing local journalism? Assessing journalistic output across different outlet types*. DeWitt Wallace Center for Media & Democracy. https://dewitt.sanford.duke.edu/wp-content/uploads/sites/3/2019/08/Whos-Producing-Local-Journalism_FINAL-1.pdf

Martin, G. J., & McCrain, J. (2019). Local news and national politics. *American Political Science Review*, *113*(2), 372–384. https://doi.org/10.1017/S0003055418000965

Matherly, T., & Greenwood, B. N. (2022). *No news is bad news: Political corruption, news deserts, and the decline of the fourth estate*. Unpublished manuscript.

Mathews, N. (2022). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265. https://doi.org/10.1177/1464884920957885

Mathews, N., & Ali, C. (2022). Desert work: Life and labor in a news and broadband desert. *Mass Communication and Society*. Advance online publication. https://doi.org/10.1080/15205436.2022.2093749

Mersey, R. D. (2009). Online news users' sense of community: Is geography dead? *Journalism Practice*, *3*(3), 347–360. https://doi.org/10.1080/17512780902798687

Musgrave, S., & Nussbaum, M. (2018, August 4). Trump thrives in areas that lack traditional news outlets. *POLITICO*. https://www.politico.com/story/2018/04/08/news-subscriptions-decline-donald-trump-voters-505605

Napoli, P. M., Stonbely, S., McCollough, K., & Ren-

ninger, B. (2017). Local journalism and the information needs of local communities: Toward a scalable assessment approach. *Journalism Practice*, *11*(4), 373–395. https://doi.org/10.1080/17512786.2016.1146625

Ord, J. K., & Getis, A. (2001). Testing for local spatial autocorrelation in the presence of global autocorrelation. *Journal of Regional Science*, *41*(3), 411–432. https://doi.org/10.1111/0022-4146.00224

O'Sullivan, J., Fortunati, L., Taipale, S., & Barnhurst, K. (2017). Innovators and innovated: Newspapers and the postdigital future beyond the "death of print." *The Information Society*, *33*(2), 86–95. https://doi.org/10.1080/01972243.2017.1289488

Pan, Z. (2000). Spatial configuration in institutional change: A case of China's journalism reforms. *Journalism*, *1*(3), 253–281. https://doi.org/10.1177/146488490000100302

Papacharissi, Z. (2015). Toward new journalism(s) affective news, hybridity, and liminal spaces. *Journalism Studies*, *16*(1), 27–40. https://doi.org/10.1080/1461670X.2014.890328

Pickard, V. (2011). Can government support the press? Historicizing and internationalizing a policy approach to the journalism crisis. *The Communication Review*, *14*(2), 73–95. https://doi.org/10.1080/10714421.2011.573430

Pickard, V. (2020). Restructuring democratic infrastructures: A policy approach to the journalism crisis. *Digital Journalism*, *8*(6), 704–719. https://doi.org/10.1080/21670811.2020.1733433

Reese, S. D. (2016). The new geography of journalism research: Levels and spaces. *Digital Journalism*, *4*(7), 816–826. https://doi.org/10.1080/21670811.2016.1152903

Rodríguez-Amat, J. R., & Brantner, C. (2016). Space and place matters: A tool for the analysis of geolocated and mapped protests. *New Media & Society*, *18*(6), 1027–1046. https://doi.org/10.1177/1461444814552098

Rosenwald, B. (2019). *Talk radio's America: How an industry took over a political party that took over the United States*. Harvard University Press.

Rubado, M. E., & Jennings, J. T. (2020). Political consequences of the endangered local watchdog: Newspaper decline and mayoral elections in the United States. *Urban Affairs Review*, *56*(5), 1327–1356. https://doi.org/10.1177/1078087419838058

Rue, H., Martino, S., & Chopin, N. (2009). Approximate Bayesian inference for latent Gaussian models by using integrated nested Laplace approximations. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, *71*(2), 319–392. https://doi.org/10.1111/j.1467-9868.2008.00700.x

Schmitz Weiss, A. (2015). Place-based knowledge in the twenty-first century: The creation of spatial journalism. *Digital Journalism*, *3*(1), 116–131. https://doi.org/10.1080/21670811.2014.928107

Schulhofer-Wohl, S., & Garrido, M. (2013). Do newspapers matter? Short-run and long-run evidence from the closure of *The Cincinnati Post*. *Journal of Media Economics*, *26*(2), 60–81. https://doi.org/10.1080/08997764.2013.785553

Scott, M., Bunce, M., & Wright, K. (2019). Foundation funding and the boundaries of journalism. *Journalism Studies*, *20*(14), 2034–2052. https://doi.org/10.1080/1461670X.2018.1556321

Shaker, L. (2009). Citizens' local political knowledge and the role of media access. *Journalism & Mass Communication Quarterly*, *86*(4), 809–826. https://doi.org/10.1177/107769900908600406

Shaker, L. (2014). Dead newspapers and citizens' civic engagement. *Political Communication*, *31*(1), 131–148. https://doi.org/10.1080/10584609.2012.762817

Smethers, J. S., Mwangi, S. C., & Bressers, B. (2021). Signal interruption in Baldwin City: Filling a communication vacuum in a small town "news desert." *Newspaper Research Journal*, *42*(3), 379–396. https://doi.org/10.1177/07395329211030687

Sparviero, S. (2021). A digital platform for ethical advertising and hybrid business models for news organizations: Are they greening methods for "news deserts"? *Media, Culture & Society*, *43*(7), 1328–1339. https://doi.org/10.1177/01634437211040676

Thurman, N., & Fletcher, R. (2018). Are newspapers heading toward post-print obscurity? A case study of *The Independent*'s transition to online-only. *Digital Journalism*, *6*(8), 1003–1017. https://doi.org/10.1080/21670811.2018.1504625

Tobler, W. R. (1970). A computer movie simulating urban growth in the Detroit region. *Economic Geography*, *46*(Suppl. 1), 234–240. https://doi.org/10.2307/143141

Usher, N. (2019). Putting "place" in the center of journalism research: A way forward to understand challenges to trust and knowledge in news. *Journalism & Communication Monographs*, *21*(2), 84–146. https://doi.org/10.1177/1522637919848362

Usher, N. (2021). *News for the rich, white, and blue: How place and power distort American journalism*. Columbia University Press.

Usher, N. (2023). The real problems with the problem of news deserts: Toward rooting place, precision, and positionality in scholarship on local news and democracy. *Political Communication*, *40*(2), 238–253. https://doi.org/10.1080/10584609.2023.2175399

Vogt, N., & Mitchell, A. (2016). *Crowdfunded journalism: A small but growing addition to publicly driven journalism*. Pew Research Center. https://www.pewresearch.org/journalism/2016/01/20/crowdfunded-journalism

Waldherr, A., Klinger, U., & Pfetsch, B. (2021). Spaces, places, and geographies of public spheres: Exploring dimensions of the spatial turn. *Media and Communi-*

cation, *9*(3), 1–4. https://doi.org/10.17645/mac.v9i3.4679

Wenzel, A. (2019). Engaged journalism in rural communities. *Journalism Practice*, *13*(6), 708–722. https://doi.org/10.1080/17512786.2018.1562360

Wu, S. (2022). Journalism's immersive shift: Uncovering immersive journalism's adherence to traditional news values, norms, routines and roles. *Journalism Practice*. Advance online publication. https://doi.org/10.1080/17512786.2022.2133779

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Article

The News Crawler: A Big Data Approach to Local Information Ecosystems

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Abstract
In the past 20 years, Silicon Valley's platforms and opaque algorithms have increasingly influenced civic discourse, helping Facebook, Twitter, and others extract and consolidate the revenues generated. That trend has reduced the profitability of local news organizations, but not the importance of locally created news reporting in residents' day-to-day lives. The disruption of the economics and distribution of news has reduced, scattered, and diversified local news sources (digital-first newspapers, digital-only newsrooms, and television and radio broadcasters publishing online), making it difficult to inventory and understand the information health of communities, individually and in aggregate. Analysis of this national trend is often based on the geolocation of known news outlets as a proxy for community coverage. This measure does not accurately estimate the quality, scale, or diversity of topics provided to the community. This project is developing a scalable, semi-automated approach to describe digital news content along journalism-quality-focused standards. We propose identifying representative corpora and applying machine learning and natural language processing to estimate the extent to which news articles engage in multiple journalistic dimensions, including geographic relevancy, critical information needs, and equity of coverage.

1. Introduction

In the past 20 years, the newspaper industry in the US has undergone immense disruption, from the digital revolution to the Great Recession, reversing the good fortunes of previous decades (Abernathy, 2020; Ali et al., 2020). The Covid-19 pandemic has further accelerated the crisis and expanded the news deserts in the US (Gabbatt, 2020). Many news outlets shuttered suddenly (Ferrucci, 2019; Griffin, 2018), leaving local readers in the dark.

To define "news desert," this study adopts Abernathy's (2018, 2022) study, which reported that growing areas (cities, towns, and regions) across the US are losing access to local news coverage. The decline in local coverage does not reduce the need for local information in local communities' day-to-day lives, and it harms residents (Hayes & Lawless, 2018). However, as news splinters and scatters, local readers have to actively seek information through newspapers in other towns or counties, digital-first news sites, television and radio broadcasters, and social media (Neff et al., 2022).

Some research into these changes has relied on a single-point geospatial location of a news outlet as a proxy for coverage area (Hutchins, 2022). This method effectively reveals national trends and informs discussion and policymaking (Jordon, 2018) but is an incomplete local measure, lacking an accurate estimation of newsroom contributions to its community's information needs, individually or in aggregate.

Alternatively, local news and information ecosystem audits have been performed. We are concerned primarily

with "local news," which we find at the intersection of "the physical locations where reporting happens, where news–decision making occurs" (Usher, 2019, p. 86) and where the social and civic life of residents is centered. It is an inherently place-based but subjective categorization that discounts contributions to local information needs by non-journalistic sources.

The manual method of news content analysis deploys a team of researchers to collect news coverage from across a city or region for a period from just one day to even a week or more to evaluate the breadth and depth of the reporting, often using the Critical Information Needs (CINs) framework defined by Friedland et al., (2012). While detailed and rigorous, this approach, as implemented by many, including Napoli et al. (2017), is also costly and time-consuming and captures only a snapshot of a defined geographic area.

A new approach is needed that integrates the strengths of these prior methods to balance national and regional scope with improved local detail and longitudinal coverage. A semi-automated solution is being developed at the University of Missouri's School of Journalism and Institute for Data Science and Informatics. The project has developed a web crawler to collect news coverage from all accessible sources for a systematic and computer-assisted analysis of CINs and relevant metadata. The software is still in development but, over five months, has collected more than 100,000 articles from 170 Missouri news sources, providing some insights into the solution's viability.

2. The Need for a New Approach

Search and social media platforms account for more than 62% of total digital advertising spend in the US (Grieco, 2020; Myllylahti, 2020), reducing newsroom's financial support and greatly contributing to the "evisceration of journalism" (Pickard, 2020, p. 714). In the last two decades, agenda-setting power has devolved rapidly from traditional media outlets (newspapers, television, and radio) to social media algorithms and consumers. As a result, Facebook and other platforms have been increasing influence in the civic discourse, and Silicon Valley has increasingly extracted and consolidated the revenues generated. In contrast, thousands of geographic areas/counties in the US now lack access to up-to-date local news and information. News deserts are spreading rapidly, challenging the suitability of traditional research methods to keep track. According to a 2018 study (Abernathy, 2018), in four years (between 2014 and 2018), almost 200 of the 3,143 counties in the US have lost their only newspaper.

Hess (2015, p. 486) argued that "local newspapers can...be seen to play a deliberate and active role in generating a sense of community." Studies find that losing a newspaper adversely affects residents' everyday lives and sense of community (Mathews, 2022). Lowrey et al. (2008) provide an ideal starting point for

a broader discussion of the relationship between newspapers and community, as the researchers conducted a comprehensive review of mass communication scholarship to analyze "community" and "community journalism," "social glue for the community" and that they "create a shared understanding of what it means to be a member of a community" (Lowrey et al., 2008, p. 284). In recent years, scores of weekly and daily newspapers have vanished from the American news landscape, and thousands of others have become shells, or "ghosts," of their former selves (Abernathy, 2018, p. 24). Though a newspaper may continue publishing under the same name, changes in ownership, staffing, and ambition result in reduced importance and impact in its community (Abernathy, 2018).

2.1. What is Our Method?

The current project explores the use of machine learning (ML) and natural language processing (NLP) to automate the analysis of digital news content along journalism-defined standards. The goal is to collect articles from a comprehensive collection of local news and information providers and use ML models to estimate the extent to which the published material engages in multiple journalistic dimensions, such as spatial and topic coverage, originality, quality, and value to the community. Given the need to gather and analyze journalism from newsrooms nationwide, computational methods are a needed and appropriate solution.

By automating the collection of news stories and using ML to perform an initial analysis of coverage, relevant variables can be tracked over time at any geographic granularity: city, county, state, region, or country—providing an ongoing description of every local information ecosystem. While a promising approach, there are barriers:

1, The complexity of language implies that automated content analysis methods cannot entirely supplant a careful and close reading and manual coding of texts.
2. There are significant challenges in collecting and maintaining the canonical web domains needed to direct the path of the web crawler.
3. The collection of news content is challenging due to paywalls, site design, and inconsistent use of metadata tags.
4. It is not yet clear that the sophistication needed for ML models to accurately identify people, coverage topics, locations, and other metadata is achievable at a threshold needed for rigorous academic study.

However, we argue that the ongoing dynamic changes in the media landscape make it necessary to apply an approach that can incorporate automated data collection, initial ML analysis of big data sets, and human validation and scrutiny of the output. Once collected, this data will allow for timelier and more local insights and

provide a new foundation for researchers across disciplines who consider the influence of news ecosystems in the analysis of political, economic, and health outcomes in local communities.

3. The Study of News Deserts

News deserts, defined as areas lacking local news coverage, present significant challenges for the communities affected and researchers studying the phenomenon (Abernathy, 2018). Various methodologies have been utilized, including mapping, surveys, interviews, data analysis, and case studies. Researchers have used Geographic Information System (GIS) mapping tools to visually represent the distribution of news outlets across a region and identify underserved areas (Abernathy, 2018, 2020, 2022; Ferrier et al., 2016; Lee & Butler, 2019; Napoli et al., 2017, 2018, 2019; Stonbely et al., 2019; Stonebraker & Green-Barber, 2021). This helps to understand the geographical patterns of news desert formation and identify areas at risk of becoming news deserts in the future (Napoli et al., 2017, 2018, 2019). Surveys have been conducted to gather data on the news consumption habits of residents, detailing the availability of and access to news in different communities (Shaker, 2014). In-depth interviews with journalists, community leaders, and residents have been conducted to gather qualitative data on the state of local news coverage (Ferrucci & Alaimo, 2020; Stonebraker & Green-Barber, 2021). This provides valuable insights into the experiences and perspectives of people directly impacted by news deserts. Content analysis provides meaningful and scalable measures for the comparative analysis of local journalism across multiple communities or within communities over time (Damanhoury et al., 2022; Neff et al., 2022; Stonebraker & Green-Barber, 2021). Data analysis of circulation and readership of local news outlets, as well as demographics and economic characteristics of communities, has helped to identify patterns and trends in news desert formation and understand the social, economic, and political factors contributing to the lack of local news coverage (Abernathy, 2018, 2022). Finally, case studies of specific news deserts have offered a more nuanced understanding of the factors contributing to the lack of local news coverage in those areas (Ferrucci & Alaimo, 2020).

Each of these methodologies helps researchers better to understand the causes and consequences of news deserts and inform efforts to address this critical issue. Existing research on local journalism and news deserts emphasizes a variety of problems and establishes different approaches. For instance, Napoli et al. (2017, 2018, 2019) and Royal and Napoli (2021) focused on CINs, while Ferrier et al. (2016) examined information ecosystems using GIS data. Damanhoury et al. (2022) examined original, local reporting and coverage of CINs as well as the type of framing in over 600 online stories appearing on the home pages of the site. Abernathy (2018, 2020, 2022) and Stonbely et al. (2019) used

GIS, whereas Stonebraker and Green-Barber (2021) used scale-based statistical analysis. Additionally, Ferrucci and Alaimo (2020) used case studies, in-depth interviews, and participant observation to emphasize the influence of community stakeholders on news construction, CINs, and the boundary between traditional and other information sources in a healthy news ecosystem.

Scholars have applied different techniques to study local audiences, their information needs, the closure of news organizations, the rise of ghost newspapers, and the spread of news deserts. Each approach served the research question the scholars wanted to explore or explain but with distinct analytical strengths and limitations.

3.1. Community Information Needs

A convenient starting point from which to consider in news desert research is the Knight Commission on Information Needs 2009 report concerning local information needs (Knight Commission on Information Needs, 2009) and the Federal Communications Commission's 2011 *Information Needs of Communities* (Waldman, 2011).

Also in 2009, the Berkman Klein Center for Internet & Society at Harvard University launched its Media Cloud research database enabling academic researchers, journalism critics, and interested citizens to examine media coverage (Berkman Klein Center, 2009). The database collects articles from selected news sources in the US and internationally but does not provide comprehensive coverage of local markets.

Ferrier et al. (2016) research focused on building capacity for more and better news and information at the local level and developing new ways to connect with the community and catalyze civic responsibility into local solutions. To conduct her initial study, Ferrier et al. (2016) used information from social media, digital ethnography, and narrative mapping techniques that examine geo-specific communities and monitor digital and physical communications. One significance of Ferrier et al. (2016) study was the use of GIS down to the ZIP code level to support the community design of localized solutions. This method allowed examination of the effects of media deserts from three layers: Content (news/information), Code (algorithms, policy, and law), and Conduit (platforms, internet access, and mobile delivery) to model local communication ecosystems. Narrative mapping helps examine the role of digital technologies in creating and sustaining digital identity, social networks, and community engagement.

Napoli et al. (2017) have pursued a series of projects focused on CINs and the coverage and quality of news. Napoli et al. (2017) have led the development of a multi-level methodological framework for assessing local journalism and the extent to which it addresses communities' CINs. The first study examined the journalistic infrastructure in three New Jersey communities.

Napoli et al. (2017, p. 17) described the use of CIN as taking:

> Into account the quantity of journalistic sources located within a community (infrastructure); the quantity of news stories/social media posts produced by these sources, along with the degree of concentration in story/social media post-production (output); and, finally, the extent to which these stories/social media posts meet basic "quality" indicators, such as originality, local orientation, and addressing recognized CINs (performance).

Napoli et al. (2017) used focus group discussions to explore how local news audiences meet their CINs and their attitudes and beliefs about their local news environments. In a following study, Napoli et al. (2018) focused on the characteristics of individual communities and the robustness of the local journalism available to those communities. The study focused on several key concepts: Are some types of communities suffering more than others? Are there particular characteristics of individual communities related to the state of their local journalism? (Napoli et al., 2018, p. 6).

Further, the study used big data sets: To present a rigorous, replicable methodological approach to assessing the robustness of local journalism as we scale the number of communities examined; and to provide descriptive data on the robustness of local journalism by providing indicators of the extent to which local communities are receiving journalism that is original, local, and that addresses CINs (Napoli et al., 2018, p. 3).

In 2018, through geolocation and visualization of newspaper newsrooms, Abernathy (2018) effectively quantified and made visible the national trend of newspaper closures and catalyzed a national policy discussion around the issue. That work was continued by Abernathy (2022), which collected and mapped the locations of more than 8,000 newspapers and digital sites news for analysis.

Damanhoury et al. (2022) compared news coverage from traditional and non-traditional sources across four counties in Colorado. The traditional sources included online stories on the home page of local newspapers, television channels, and radio stations, and non-traditional sources, including the Facebook pages of school districts, government bodies, cities, and NGOs (Damanhoury et al., 2022, p. 7). This study examined how non-traditional media met the CINs of their communities in addition to traditional sources. The research team first reviewed the literature on local news, highlighting CINs originality, locality, and framing as key indicators for assessing the quality of journalism, and underscored the impact of journalistic infrastructure and demographics on news reporting (Damanhoury et al., 2022, p. 2). News from traditional sources was collected for a week in late July 2020. This yielded a sample of 631 stories and a quantitative content analysis. In line with Napoli et al.'s

(2017) approach in New Jersey, the selected Colorado counties varied in population size, minority population, income levels, and urban-rural classification. This study was limited in scalability as it depended on manual quantitative content analysis.

Stonbely et al. (2019) looked at the loss of local news coverage, specifically the connection between the community's health and the health of news coverage. The study synthesized prior news deserts and media ecosystem studies to evaluate the gap between citizens' needs and the media's provision. The article attempted to define the theoretical parameters of an ecosystem mapping method that covers a large area while capturing the lived reality of local news ecosystems (Stonbely et al., 2019, p. 1025). In addition, beyond establishing a method for large-scale mapping of local news ecosystems, Stonbely et al. (2019) focused on identifying those communities without regular local government news coverage. The article synthesized the literature and presented a critical analysis of research methods.

Neff et al. (2022) built a multi-dimensional framework for assessing local media systems to identify potential gaps in news provision, especially among socioeconomically marginalized communities. The study gathered data on income, education, and age of audiences and coverage areas for 38 news outlets in Philadelphia and conducted a content analysis to gauge how these outlets meet CINs related to the Covid-19 pandemic. This research outlined a methodological approach to assess multiple dimensions of Philadelphia's media system: audience socioeconomics, audience size, news staffing levels, media ownership structures, and news platforms (more recent digital-only entrants in the media system vs. older, legacy outlets that generally combine platforms such as print, broadcast, and digital).

4. A Scalable Method

The strengths and limitations of these methodologies represent a continuum from richly described but locally and time-constrained ecosystem audits to nationally significant analyses that lack a rich local context. The approach being developed at the University of Missouri consists of six steps:

1. Collection and maintenance of state-based lists of web domains of local information sources.
2. Development of a web crawler to traverse those news sources and regularly gather article text and metadata.
3. Creation of a database to store the collected text and associated information.
4. Training of ML models to analyze the text and extract relevant entities, including location, topics, people, and institutions.
5. Integration of GIS data layers to support analysis.
6. A web interface to enable the production of reports and visualizations.

The first four steps are currently in a prototype phase, with the web crawler collecting more than 100,000 stories from 170 Missouri news sites in the winter and spring of 2022–2023. But each step of the data collection pipeline includes some already recognized challenges, and both expected and still undiscovered roadblocks.

4.1. Collecting News URLs

There is currently no authoritative nationwide list of news outlets, at least partly due to the scale of the effort required and the definitional issues involved.

To direct our web crawler, in the spring and fall of 2022, the team collected lists of news sites from The Center for Innovation and Sustainability at the University of North Carolina, the Editor & Publisher Yearbook, the MediaCloud project at Harvard, and a variety of other sources that included news membership organizations including LION Publishers, the Institute of Nonprofit News, as well as state press and broadcast associations. This data collection aimed to identify any website that might be fairly described as a "local information provider."

Our initial collection of news sites focused on five states: Missouri, Illinois, North Carolina, New Jersey, and New York. The lists include the outlet name, web URLs, geographic coverage area, street address, print circulation (when applicable), and ownership. The results were manually filtered to eliminate duplicates and compiled into a single database.

Though some of the lists of news sites were of recent vintage, errors and omissions were quickly apparent during the first validation process, which involved manually visiting every collected domain within Missouri.

Most critically, some sites had disappeared or stopped updating. These were not added for data collection.

Another challenge: Some newspapers, especially in smaller, rural communities, do not regularly publish their journalism online. Many offer placeholder web pages or link only to a replica edition or a Facebook page. The publication of a replica/PDF excludes the possibility of automated analysis with our method, though we are evaluating the ability to ingest and process PDFs and scan social media pages. These sites were retained in our lists but not added for data collection.

Mergers, acquisitions, and sales by newsgroups (including the Gannett and Gatehouse combination) are frequent but not always exhaustively reported, complicating the work of creating a canonical list of sites for the web crawler and the task of collecting all relevant articles from each site (also suggested by Lindgren et al., 2020). These mergers often lead to a functional combination of websites where a domain name belonging to a newly purchased newsroom now redirects to a section front on the now-parent company's larger news site.

A similar and common complication was the discovery of new sources of local news that had launched recently or had been overlooked on prior lists. When discovered, these sites were added for data collection, but this effort requires almost constant vigilance and ongoing reassessment.

4.2. The Web Crawler

The process to identify and collect news articles utilizes several Python tools: StorySniffer to determine which URLs on each site are likely to be news articles, Newspaper3k to scrape text and certain metadata fields, and BeautifulSoup to scrape fields not easily obtained with the Newspaper3k package.

The first test of the crawler in the fall of 2022 targeted 264 news sites in Missouri. Over 65 sites were immediately identified as "non-viable" for article collection due to one or more of the causes noted previously.

Another 27 sites presented paywall-related barriers, either blocking the web crawler, providing only a headline and summary text, or limiting access to a handful of articles. Additionally, 21 sites presented technical complications to the collection of story text. These issues appear idiosyncratic and may require significant development effort to optimize. However, 170 of the 264 sites were deemed accessible (some of which posed minor paywall issues), and in December 2022 and January 2023, the crawler collected 33,380 news articles statewide. Approximately 25% originated from television news sites, 13% from radio newsrooms, and 62% from newspaper or digital-only sites.

The paywall-related exclusions can be individually remedied. In the next research phase, still focused on Missouri, we plan to subscribe to or negotiate access to these news sources. However, this approach will be increasingly difficult as the project expands to multiple states.

The strictly technical barriers to web crawler access are solvable at scale but will require dozens or hundreds of customized solutions.

The challenges posed by the discovery and maintenance of a canonical list of news sites are not unique to our method, and the automated monitoring approach we are developing is best equipped to identify "ghost" newspaper sites and to easily add and collect data from newly founded or discovered sources at marginal cost.

It is too early to assess the impact of these automated methods having less than comprehensive coverage of any given local market, region, or state. One hundred percent collection—every story from every news provider— is impractical at any scale for the reasons stated here. The evaluation of "how many is enough" will be a factor of the volume of total outlets vs. those accessible, total stories in a market vs. those collected, and many intangible variables, including geographic location, unique coverage, specific communities served, and the expressed value of those stories by community members. Additional quantitative analysis and local qualitative research will be needed to understand and balance these concerns.

4.3. Development of Machine Learning Models

Once collected, article text is analyzed with several software packages: The Natural Language Toolkit to perform initial NLP; Gensim to identify articles that are exact or close matches of one another; and spaCy for named entity extraction of geographic locations.

In addition to spaCy, we evaluated several statistical learning NLP tools that have been used in other journalism-content analysis projects, including the Stanford Named Entity Recognizer, Flair, DeepPavlov, General Architecture for Text Engineering, and Polyglot. Three core criteria were used to evaluate the tools: whether they were open source, whether they processed data quickly, and whether they could be modified easily to extract entities that are commonly unique to news articles. In a comparison of these tools applied to news texts, Vychegzhanin and Kotelnikov (2019) found that the open-source spaCy, Polyglot, and General Architecture for Text Engineering were the fastest, compared to Flair, the Stanford NER, and DeepPavlov. The Missouri team selected spaCy because of the ease of adding custom rules and retraining the model.

In the fall of 2023, we expect to manually code a sample of the 100,000 articles already collected to classify the seven CINs, plus sports (a CIN + 1 formulation used by a team of researchers at Rutgers and Montclair State University; M. Weber, personal communication, 27 July 2022), and to train the ML model using that corpus. The addition of sports to the core CIN reflects the importance of that genre to local news coverage. It is a discrete section in the newspaper, online, and broadcast outlets, and one easily identifiable using ML models. Expansion of additional topics within the CIN framework is anticipated as the broad definition of the current categories complicates automated analysis. For example, the civic information category includes many potential genres and might be subdivided into local politics, community events, and community leaders. Similarly, the emergencies and risks category encompasses crime and natural disasters. But, as a starting point, the team utilized: emergencies and risks, health and welfare, education, transportation; economy, the environment, civic information, and sports

5. Pilot Project

An initial ML analysis was performed in the spring of 2023 as part of a MA thesis at the Institute for Data Science and Informatics, University of Missouri. The project considered the headline, publication date, author, article URL, header image URL, article text, hostname, article tags, and other metadata (Zdun, 2023).

That data was used to develop an automated process to determine the geographic distribution and category of local news coverage in a given market.

For this pilot, three designated market area (DMA) regions in Missouri were extracted from the initial statewide collection. The markets were chosen for geographic and demographic diversity: Joplin, the smallest, in the southwest corner of the state; Springfield, a mid-sized market in the center of the state; and St. Louis, a large market in the eastern portion of the state. The sample included 3,564 unique articles from 46 newspapers, seven television stations, and one magazine.

Named entities were extracted from the articles, geocoded, and plotted on a map. The bigram dictionary and zero-shot learning methods were also used to classify the articles. The baseline model achieved precision scores generally in the 60–70% range and recall scores in the 80–90% range for the subset of articles tested. In this context, precision measures how many articles were correctly classified (of all articles classified as belonging to the category "crime," what share were actually about crime). Recall measures how many articles were found in a given category out of all true articles in that category (of all articles in the sample about crime, what share did the model correctly identify).

The zero-shot learning model performed better (see Table 1), achieving precision scores largely in the 80–90% range and recall scores in the 90% range for the subset of articles tested. The category with the lowest recall score was politics and civic life, indicating that, among all true politics and civic life articles in the subset of articles checked, the model identified 71% correctly. The relatively low recall score was likely in part because politics and civic life is a broad and nebulous category. Weather articles also scored relatively low in precision and recall, likely in part because weather articles took many forms, and so were not easily classified by the model.

Sinha et al. (2022) showed in their comparative analysis of ML techniques for text classification that various supervised learning models produced precision scores between 69% and 91% and recall scores between 73% and 91%. Among deep-learning models, Minaee et al. (2021) showed that mean average precision scores largely rest in the 65% to 80% range, with some reaching 90%. As the zero-shot learning model yielded higher precision scores across all categories than the bigram dictionary approach—and ones well within and, in some cases, exceeding the best-performing scores in other studies—it was used to classify all articles in the sample.

For this study, the zero-shot precision scores in the 80–90% range indicate that the vast majority of articles that were labeled as a certain category did actually belong to that category. The even higher recall scores seen in the road and car crashes, sports, crime, health, community events, and features categories indicate that very few articles that actually belonged to these categories were overlooked or missed in the classification process.

In the collected sample of 3,564 articles, 1,439 were classified as Community Events and Features, 613 as Crime, 551 as Sports, 451 as Politics and Civic Life, 184 as Roads and Car Crashes, 164 as Health, 95 as Fire and Natural Disasters, and 55 as Weather. A small number

were unclassified and labeled as Miscellaneous. These categories align with, but do not exactly descriptively match the original CIN framework and were chosen to accurately reflect the volume and specificity of topics observed in the data. As the ML model improves in the next research phase, more work is needed to normalize and then expand the categories within a CIN taxonomy.

The share of the nine topic categories was relatively consistent between the three markets, with no more than a three-percentage point variation—except for crime coverage in St Louis and sports in Joplin, which were significantly higher than the average.

Figures 1, 2, and 3 show the distribution and type of coverage produced by newspapers and television stations for selected CIN categories in the three Missouri regions.

When combined with other data about the underlying region, this distribution and coverage analysis could

reveal interesting insights about the characteristics of regions where CIN gaps exist or news is not produced at all. Those overlays were not applied in the pilot project, but beyond basic demographics, researchers are collecting data that include literacy rates, electoral participation, governmental spending, local retail sales, philanthropic investments, and residents' commute times. This data will be used to evaluate both the audience demand for local news and the capacity of the community to economically self-sustain the provision of local information.

5.1. Geographic Distribution of Coverage

Our consideration of a community-focused definition of "media markets" relies on understanding the place-based location(s) of each news article produced in a region. This is to locate the coverage in a local context

Table 1. Precision and recall measurements using the zero-shot model analysis.

	Category	Precision	Recall	F_1
Zero-Shot	Politics and Civic Life	0.9667	0.7073	0.8169
	Roads and Car Crashes	1	0.9474	0.9730
	Sports	0.9583	0.9787	0.9684
	Crime	0.8667	0.9512	0.9070
	Health	0.9091	1	0.9524
	Community Events and Features	0.8992	0.9469	0.9224
	Weather	0.75	0.75	0.75
	Fire and Natural Disasters	0.8571	0.8571	0.8571
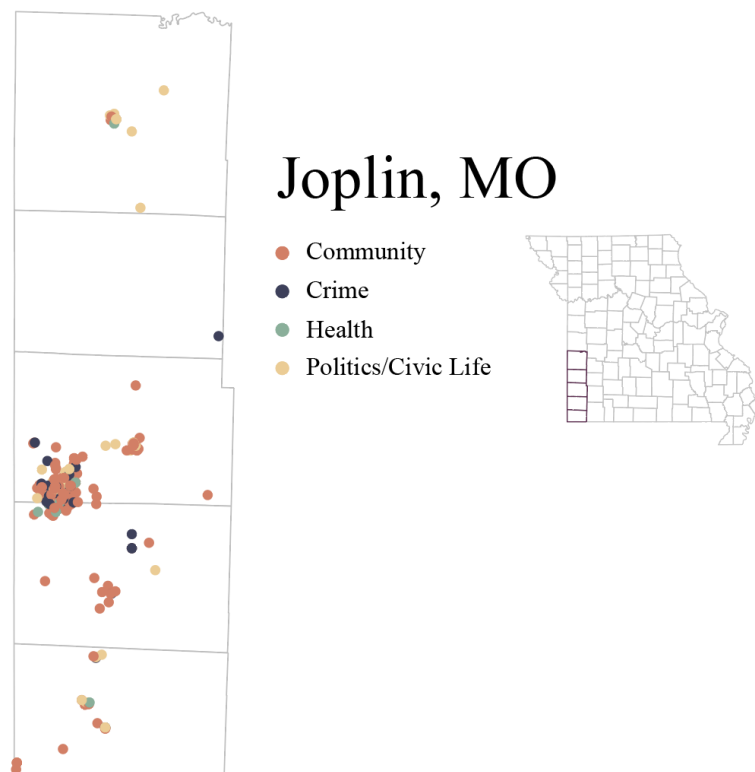
Figure 1. A selection of the CIN categories covered in the five Missouri counties within the Joplin-Pittsburg DMA studied in December 2022.

Springfield, MO

- Community
- Crime
- Health
- Politics/Civic Life
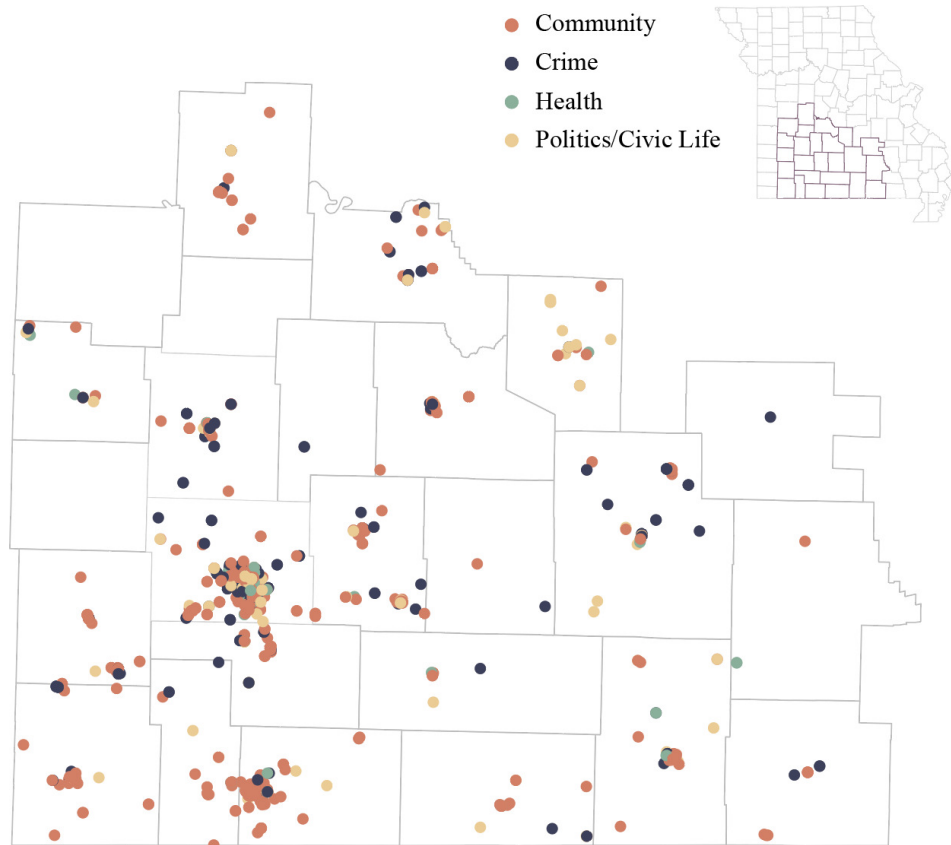
Figure 2. A selection of the CIN categories covered in the 25 Missouri counties within the Springfield DMA in December 2022.

and to filter out locally published stories that refer exclusively to non-local events.

The geographic distribution of coverage in our sample was determined by extracting certain named entities from each article using the open-source spaCy package and its en_core_web_md model, a medium-sized pre-trained model used for tokenization, part of speech tagging, named entity recognition, and other text analysis tasks. For each article, we collected three types of named entities, if they existed: geopolitical entities (such as cities and towns), facilities (such as bridges and airports), and the names of organizations.

The developer also wrote several custom rules using spaCy's rule-based matching feature to collect certain named entities commonly used in news articles but not typically recognized by the pre-trained model. This included block patterns ("4200 block of Maple Avenue"), street patterns ("Gloria Street near Jefferson Avenue"), and other patterns that were unique to news articles.

All extracted named entities from the news stories were then geocoded using the Google Maps API, and the relevant latitude and longitude pairs were plotted on a map to visualize areas receiving news coverage.

5.2. Type of Coverage

The geographic distribution of news can only be evaluated with an understanding of the type of coverage provided in each instance. Under the CIN framework, a healthy information ecosystem requires a balanced mix of news topics. Our research evaluated two data science methods for categorizing news stories: a bigram dictionary and a zero-shot learning method.

More than 900 articles were hand-labeled using the bigram dictionary approach, classifying each into CIN-aligned categories: sports, civic, crime, roads, health, or other. A Term Frequency Inverse Document Frequency Vectorizer was applied to determine the top bigrams for each category. For example, the top three bigrams in the crime category were Police Department, Police Said, and County Police. The top bigrams in the civic category included City Council, School District, and School Board. These bigrams across the six categories were added to a dictionary to classify future articles.

Zero-shot learning, an increasingly popular application of ML, does not require pre-labeled data (Yin et al., 2019). These models evaluate new text on a set of labels not previously seen by the classifier. The open-source

St. Louis, MO

- ● Community
- ● Crime
- ● Health
- ● Politics/Civic Life
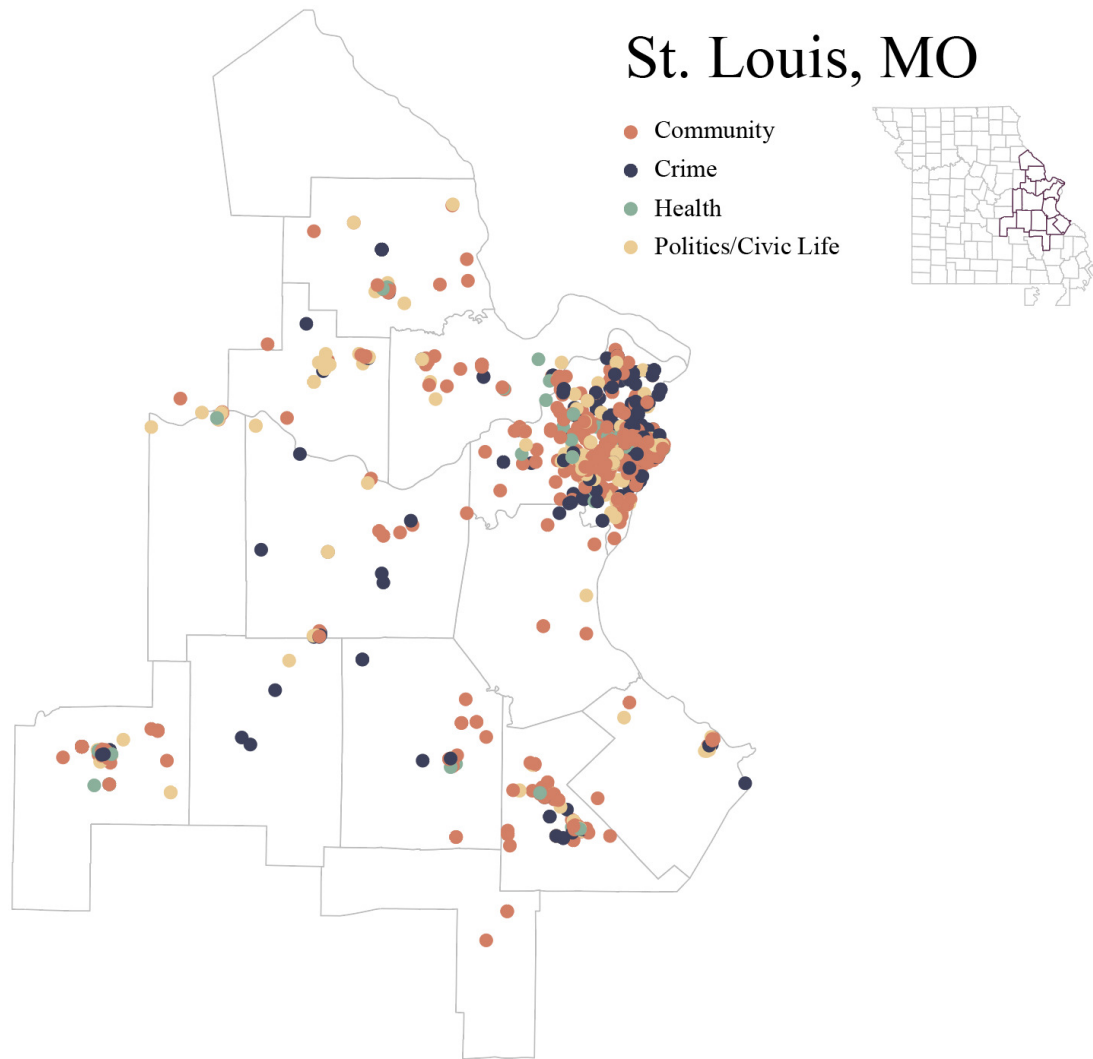
Figure 3. A selection of the CIN categories covered within the 15 Missouri counties of the St.Louis DMA in December 2022.

"bart-lage-mnli-yahoo-answers" model, a transformer encoder-decoder model, was used.

As with other natural language inference models, the zero-shot model compares a hypothesis with a premise. The hypothesis statement used in this case included: "This text is about" as well as nine categories that mirrored the CINs framework: Politics and Civic Life, Community Events and Features, Sports, Roads and Car Crashes, Health, Crime, Fire and Natural Disasters, Weather, and Miscellaneous. To classify the articles, the model determined whether there was an entailment, contradiction, or neither between the hypothesis statement and the premise, which, in this case, was the article text. For example, a short article in the *Bolivar Herald-Free Press* in southeastern Missouri: "Choirs and instrumentalists took the stage at Southwest Baptist University's Pike Auditorium during their 42nd annual Festival of Christmas on Sunday, Dec. 4." The zero-shot model took this article text as the premise, applied the hypothesis statement, tested all of the categories, and ultimately determined that there was an entailment between the article text and the "community events and features" category.

6. Discussion

Despite the robustness, relevance, and value of previous research, the data, tools, and methods used to explore news ecosystems are frequently constrained by geographic boundaries or a lack of rich local detail. This current research introduces automated approaches that can address these limits.

Once fully developed, our web crawler and ML tools will contribute to the study of CINs and news deserts by collecting locally-created news coverage and generating a geo-located analysis of each article text to allow selected CIN categories to be evaluated over time at any level: city, county, state, region, or country—providing an almost hourly snapshot of the health of any local information ecosystem.

News deserts are not a static or binary condition. There is information provision in communities that have no local news outlets, just as towns with a local newsroom may remain critically underserved (Usher, 2023). Moreover, a news desert does not arise overnight or without civic influences and regional or national

economic trends (Hess & McAdam, in press). From a distance, news-poor communities may share descriptive characteristics, but the combination of particular causes and solutions is unique to each market.

A quantification of these characteristics: counting newsrooms or local journalists or performing audits of CINs tells the "what." However, that story is incomplete without the qualitative work in a local community to understand the "how" and "why" (Mathews & Ali, 2022). This pairing of quantitative and qualitative methods is expensive, imposing a selection bias on the communities analyzed and effectively limiting the volume of such reports.

This challenge of historical context, data collection, measurement, and analysis, hinders policymakers, funders, and practitioners from effectively intervening to stem a news drought or reverse a desert. Attempts have been made, and some have succeeded, but decisions to invest are driven more by vibes than deeply researched data paired with identified community needs, thereby replicating the errors of inequity that distorted past efforts (Usher, 2021).

Adapting local news ecosystem research methods to enable longitudinal and geographic scales is not without its challenges. A proper understanding of the information health of a single community demands thorough local knowledge and analysis. Data collection and evaluation of thousands of individual news ecosystems across the country requires a scale of work only practical with the support of an automated process. ML and NLP techniques are well suited for this task.

Researchers need access to a near-real-time cross-market evaluation of the quality and coverage of locally generated news to inform policy solutions and evaluate the health of communities, as well as the business of news. Journalism funders need similar insights to understand where and when to invest in legacy newsrooms or to take a bet on new start-ups. And start-up founders have the same questions.

By examining the volume and distribution of topics produced by local journalists, a better understanding of the interaction of local stories and their trajectories in these markets can be quantified and projected. Using network-based time and distance models, the core and periphery areas of news markets can be determined. Geographically weighted regression models can be applied to understand the local news ecosystem and its development. In addition, access to reliable data within and between media markets around the country can support research questions across disciplines, including media ownership, electoral turnout, Covid-19 vaccinations, gun violence, community health outcomes, economic growth, equity in public policy, and climate change preparedness.

Both logistical and technical barriers remain. Maintaining an accurate list of local information providers is difficult, given the rate of openings, closures, and the inherently local nature of this informa-

tion (Lindgren et al., 2020). We have also highlighted the barriers posed by paywalls, web design, and the unique vocabulary and syntax of news writing. But our pilot project's results have shown the approach's potential long-term merit.

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Conflict of Interests

The authors declare no conflict of interests.

References

Abernathy, P. M. (2018). *The expanding news desert*. Center for Innovation and Sustainability in Local Media, School of Media and Journalism; University of North Carolina at Chapel Hill.

Abernathy, P. M. (2020). *News deserts and ghost newspapers: Will local news survive?* University of North Carolina Press.

Abernathy, P. M. (2022). *The state of local news*. Local News Initiative. https://localnewsinitiative.northwestern.edu/research/state-of-local-news/report

Ali, C., Radcliffe, D., Schmidt, T. R., & Donald, R. (2020). Searching for Sheboygans: On the future of small market newspapers. *Journalism*, *21*(4), 453–471.

Berkman Klein Center. (2009). *Introducing media cloud*.

Damanhoury, K. E., Coppini, D., Johnson, B., & Rodriguez, G. (2022). Local news in Colorado: Comparing journalism quality across four counties. *Journalism Practice*. Advance online publication. https://doi.org/10.1080/17512786.2022.2083003

Ferrier, M., Sinha, G., & Outrich, M. (2016). Media deserts: Monitoring the changing media ecosystem. In M. Lloyd & L. Friedland (Eds.), *The communication crisis in America, and how to fix it* (pp. 215–232). Palgrave Macmillan. https://doi.org/10.1057/978-1-349-94925-0_14

Ferrucci, P. (2019). *Making nonprofit news: Market models, influence and journalistic practice*. Routledge.

Ferrucci, P., & Alaimo, K. I. (2020). Escaping the news desert: Nonprofit news and open-system journalism organizations. *Journalism*, *21*(4), 489–506.

Friedland, L., Napoli, P., Ognyanova, K., Weil, C., & Wilson, E. J., III. (2012). *Review of the literature regarding critical information needs of the American public*. Unpublished manuscript. https://transition.fcc.gov/bureaus/ocbo/Final_Literature_Review.pdf

Gabbatt, A. (2020, April 9). US newspapers face "extinction-level" crisis as Covid-19 hits hard. *The*

Guardian. https://www.theguardian.com/media/2020/apr/09/coronavirus-us-newspapers-impact

Grieco, E. (2020, February 14). Fast facts about the newspaper industry's financial struggles as McClatchy files for bankruptcy. *Pew Research Center*. https://www.pewresearch.org/short-reads/2020/02/14/fast-facts-about-the-newspaper-industrys-financial-struggles

Griffin, R. (2018, September 5). Local news is dying, and it's taking small town America with it. *Bloomberg*. https://www.bloomberg.com/news/articles/2018-09-05/local-news-is-dying-and-it-s-taking-small-town-america-with-it

Hayes, D., & Lawless, J. L. (2018). The decline of local news and its effects: New evidence from longitudinal data. *The Journal of Politics*, *80*(1), 332–336. https://doi.org/10.1086/694105

Hess, K. (2015). Making connections: "Mediated" social capital and the small-town press. *Journalism Studies*, *16*(4), 482–496.

Hess, K., & McAdam, A. (in press). Degradation and "desertification" of digital news ecosystems. In S. Eldridge, J. Swart, S. Banjac, & D. Cheruiyot (Eds.), *The Routledge companion to digital journalism studies*. Routledge.

Hutchins, C. (2022). *Introducing the Colorado news mapping project*. Colorado News Collaborative. https://colabnews.co/projects/colorado-news-mapping-project-method

Jordon, S. (2018, April 13). Shareholders won't be tossing newspapers at this year's Berkshire Hathaway meeting. *Omaha World-Herald*. https://www.omaha.com/money/shareholderswon-t-be-tossing-newspapers-at-this-year-s/article_9a9b2a84-9dfd-5638-bc39-3d27b7b4ffe8.html

Knight Commission on Information Needs. (2009). *Informing communities: Sustaining democracy in the digital age*. https://knightfoundation.org/reports/informing-communities-sustaining-democracy-digital

Lee, M., & Butler, B. S. (2019). How are information deserts created? A theory of local information landscapes. *Journal of the Association for Information Science and Technology*, *70*(2), 101–116.

Lindgren, A., Corbett, J., & Hodson, J. (2020). Mapping change in Canada's local news landscape: An investigation of research impact on public policy. *Digital Journalism*, *8*(6), 758–779.

Lowrey, W., Brozana, A., & Mackay, J. B. (2008). Toward a measure of community journalism. *Mass Communication and Society*, *11*(3), 275–299.

Mathews, N. (2022). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265.

Mathews, N., & Ali, C. (2022). Desert work: Life and labor in a news and broadband desert. *Mass Communication and Society*. Advance online publication. https://doi.org/10.1080/15205436.2022.2093749

Minaee, S., Kalchbrenner, N., Cambria, E., Nikzad, N., Chenaghlu, M., & Gao, J. (2021). Deep learning—Based text classification: A comprehensive review. *ACM Computing Surveys (CSUR)*, *54*(3), 1–40.

Myllylahti, M. (2020). Paying attention to attention: A conceptual framework for studying news reader revenue models related to platforms. *Digital Journalism*, *8*(5), 567–575.

Napoli, P. M., Stonbely, S., McCollough, K., & Renninger, B. (2017). Local journalism and the information needs of local communities: Toward a scalable assessment approach. *Journalism Practice*, *11*(4), 373–395. https://doi.org/10.1080/17512786.2016.1146625

Napoli, P. M., Stonbely, S., McCollough, K., & Renninger, B. (2019). Local journalism and the information needs of local communities: Toward a scalable assessment approach. *Journalism Practice*, *13*(8), 1024–1028.

Napoli, P. M., Weber, M., McCollough, K., & Wang, Q. (2018). *Assessing local journalism: News deserts, journalism divides, and the determinants of the robustness of local news*. Dewitt Wallace Center for Media and Democracy. https://dewitt.sanford.duke.edu/assessing-news-media-infrastructure-report-released

Neff, T., Popiel, P., & Pickard, V. (2022). Philadelphia's news media system: Which audiences are underserved? *Journal of Communication*, *72*(4), 476–487. https://doi.org/10.1093/joc/jqac018

Pickard, V. (2020). Restructuring democratic infrastructures: A policy approach to the journalism crisis. *Digital Journalism*, *8*(6), 704–719.

Royal, A., & Napoli, P. M. (2021). *Local journalism's possible future: Metric media and its approach to community information needs*. Researchgate. https://rb.gy/cv3p2

Shaker, L. (2014). Dead newspapers and citizens' civic engagement. *Political Communication*, *31*(1), 131–148.

Sinha, A., Naskar, M. N. B., Pandey, M., & Rautaray, S. S. (2022). Text classification using machine learning techniques: Comparative analysis. In B. Sahoo & S. P. Mohanty (Eds.), *2022 OITS International Conference on Information Technology (OCIT)* (pp. 102–107). IEEE.

Stonbely, S., Konieczna, M., & Holcomb, J. (2019). *Mapping local news ecosystems, phase 1: Meta-review of the literature, a typology of ecosystem studies, and a proposed method for the ideal ecosystem study (Mapping Local News Ecosystems)*. Center for Cooperative Media.

Stonebraker, H., & Green-Barber, L. (2021). *Healthy local news & information ecosystems: A diagnostic framework*. Impact Architects. http://files.theimpactarchitects.com/ecosystems/full_report.pdf

Usher, N. (2019). Putting "place" in the center of journalism research: A way forward to understand challenges to trust and knowledge in news. *Journalism &*

Communication Monographs, *21*(2), 84–146. https://doi.org/10.1177/1522637919848362

Usher, N. (2021). *News for the rich, white, and blue: How place and power distort American journalism*. Columbia University Press.

Usher, N. (2023). The real problems with the problem of news deserts: Toward rooting place, precision, and positionality in scholarship on local news and democracy. *Political Communication*, *40*(2), 238–253.

Vychegzhanin, S., & Kotelnikov, E. (2019). Comparison of named entity recognition tools applied to news articles. In *2019 Ivannikov Ispras Open Conference (ISPRAS)* (pp. 72–77). IEEE.

Waldman, S. (2011). *Information needs of communities: The changing media landscape in a broadband age*. Diane Publishing.

Yin, M., Wortman Vaughan, J., & Wallach, H. (2019). Understanding the effect of accuracy on trust in machine learning models. In S. Brewster & G. Fitzpatrick (Eds.), *Proceedings of the 2019 Chi Conference on Human Factors in Computing Systems* (pp. 1–12). ACM.

Zdun, M. (2023). *Assessing the quality and distribution of news in local television and newspaper markets using data science methods* [Unpublished Master's thesis]. University of Missouri.

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Article

A Computational Mapping of Online News Deserts on African News Websites

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Abstract
To date, the study of news deserts, geographic spaces lacking local news and information, has largely focused on countries in the Global North, particularly the United States, and has predominantly been interested in the causes and consequences of the disappearance of local media outlets (e.g., newspapers and TV stations) to the social fabric of a community. In this article, we extend the concept of "news deserts" by drawing on literature on the geography of news in Africa, where information voids have long been documented but have not been studied within the conceptual framework of news deserts. Using computational tools, we analyse a sample of 519,004 news articles published in English or French by news websites in 39 African countries. We offer evidence of the existence of online news deserts at two levels: at a continental level (i.e., some countries/regions are hardly ever covered by online media of other African countries) and at a domestic level (i.e., online news media of a given country seldom cover large areas of the said country). This article contributes to the study of news deserts by (a) examining a continent that has not been featured in previous research, (b) testing a methodological approach that employs computational tools to study news geographies online, and (c) exploring the flexibility of the term and its applicability to different media ecosystems.

Keywords
Africa; digital media; geography of news; news websites; online news deserts

Issue
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1. Introduction

In recent years, a shrinking of the number of local news outlets, their circulation, and reach, particularly in the United States, has led to a flourishing of academic research on "news deserts," communities "either rural or urban, with limited access to the sort of credible and comprehensive news and information that feeds democracy at the grassroots level" (Abernathy, 2020, p. 18). The technological, demographic, and financial transformations in the local media industry that have led to the emergence of news deserts in the United States have also been identified in other developed economies like the

United Kingdom (Gulyás, 2021), Australia (Barnes et al., 2022), or Sweden (Nygren et al., 2018). Despite the differences in the structure of the media systems in these countries (Hallin & Mancini, 2011), research on news deserts in all of them has focused on the changing structure of media ownership in local news (Gulyás & Baines, 2020), its connection to decreasing levels of the plurality of voices in the media (Finneman et al., 2022) and the consequences that these changes have on the social fabric of affected communities (Mathews, 2022). In other words, existing research on news deserts shares the same point of departure: the interest in studying the causes and consequences of transitioning from geographic spaces

(i.e., neighbourhoods, parishes, towns, cities, etc.) with one or multiple news outlets focused on local reporting, to fewer or, in many cases, none. However, many countries in the Global South, including most in Africa, which is the focus of this article, have never seen the establishment of a local press (Krüger, 2022). In such a context, can we still talk about news deserts?

A few exceptions aside (Berger, 2011; Duncan, 2015), a commercial local press was prevented from thriving under colonial rule in most African countries (Newell, 2016) and has struggled to find a fertile environment to grow in post-colonial times (Kasoma, 1995). This has meant that, across the continent, the provision of local information has for many years been the remit of radio stations, particularly community and/or local stations (Heywood, 2020; Manyozo, 2009; Mathe & Motsaathebe, 2023) and, to a lesser extent, television. For decades, radio has remained the main source of news for large sways of the African population. According to data from Afrobarometer (2008, 2022), a pan-African social and political values survey, in 2008–2009, close to 77% of Africans said they listened to the radio every day or multiple times a week. This number has been decreasing over the years and, in 2022, it stood at 69%. As radio listenership slowly decreases, the continent has seen a sharp rise in online news consumption, which stood at 38% in 2022. Around 11% of those surveyed by Afrobarometer in that year said that they never listened to the news on the radio and only read news online. It is within this gradually shifting media environment that this article asks: Given the rise in consumption of online news and the proliferation of news websites across the continent, how much geographic diversity are online readers being exposed to? Are there any traces of the existence of news deserts in Africa's online news media?

This article can, therefore, be understood as an effort to expand the concept of news desserts in several ways: geographically, methodologically, and conceptually. From a geographic point of view, we follow Chakrabarty (2008) who suggests researchers provincialise United-States- and Global-North-centred cases and treat them as particular rather than universal. Our focus is on African news websites, which, as we note above, are a growing source of information across the continent (Conroy-Krutz & Koné, 2020). Conceptually, we engage with literature on news geographies, an area of study that has long been interested in the inclusion/exclusion of geographical spaces in the news media. Instead of understanding news deserts as the consequence of shrinking media environments, by focusing on online news content, we explore whether news deserts might also emerge for other reasons (e.g., financial constraints in news reporting, North–South media dependencies, etc.) in contexts that are different from those described in most existing studies.

Methodologically, instead of dissecting the structure of media ownership or examining the diversity of media sources, which are the prevailing approaches in schol-arship about news deserts, we study the content of news websites in three dozen African countries using computer-assisted social sciences methods. In so doing, we further our case for the need to widen the geographical scope of research on news deserts to include countries where news deserts might exist in certain parts of the media ecosystem, not because of the vanishing of local newspapers, but because of other reasons. By stretching the applicability of the concept, we shift the focus away from the underlying causes that enabled the appearance of news deserts to the consequences of their existence, regardless of the factors leading to their emergence: News deserts can ultimately affect the quality of the democratic process and affect both social and political engagement (Mathews, 2022).

In line with previous research on the geography of news in Africa (e.g., El Zein & Cooper, 1992; Kalyango & Onyebadi, 2012), our analysis of the geographic distribution of online news reveals spatial inequalities in news coverage. These inequalities, to which we refer as "online news deserts," are present at two levels: continental (i.e., some countries, regions, and urban centres in Africa are hardly ever covered by online media from other African countries) and domestic (i.e., online news media of country X do not provide any news about large areas of country X). Before describing the findings and methodological approach, Section 2 provides an overview of the strands of research on which our analysis is built and offers a discussion on how the concept of "news deserts" could be applicable to the case of online news about Africa in Africa.

2. Literature Review

The term "news desert" is used to describe "towns and regions that receive very little to no local news coverage" (Ferrucci & Alaimo, 2020, p. 490). More broadly, Ferrier (2014, p. 2), who prefers the concept of "media desert," talks about "a geographic locale that lacks access to fresh, local news and information." This is in line with what Howells (2015, pp. 81–82) calls "news black holes": gaps in local news that are the product of "newspaper closures," a "withdrawal of local journalism," and a "decrease in local ownership" of the media. Other factors that have been identified as causes of the emergence of news deserts include the decline in readership of print journalism, the rise of digital media, and changes in the advertising landscape (Abernathy, 2018). In recent years, the emergence of news deserts has been accelerating in the Global North. For example, Abernathy (2020) found that 1,800 local communities in the United States have gone from having at least one news outlet in 2004 to having none in 2020. In Australia, amidst the Covid-19 pandemic, NewsCorp, a media group, announced that over "125 of its regional newspapers would either be closed or become digital-only" (Barnes et al., 2022).

In most countries in the Global South, a local press never developed to the extent seen in the United States

or Australia. For instance, in Brazil, da Silva and Pimenta (2020, p. 49) explain that a combination of the digital revolution and a persistent economic downturn has hampered the development of a local press, resulting in more than 2,700 municipalities (half of those in the country) not having any locally registered news outlet. The authors refer to these municipalities as "news deserts." While some of these news deserts have emerged because of media organisations closing down, many, particularly in the north of the country, have always been there (Moreira et al., 2021). This is also the case in many African countries where, except for local and community radio stations (da Costa, 2012; Manyozo, 2009) and some isolated cases of local print and digital media (Berger, 2011), news production tends to be highly concentrated in large urban areas, primarily capital cities. This, Krüger (2022) suggests, makes news deserts in Africa rather abundant. And yet, academic research on the presence/absence of news deserts on the continent is lacking.

2.1. News Deserts Online at a Continental Level

Africa has been quite prominent in studies on the geography of news (e.g., El Zein & Cooper, 1992; Kalyango & Onyebadi, 2012), a strand of research interested in the spatial distribution of news content and the way it affects the representation and perception of places (Cresswell, 2004). Initially, studies on the geography of news were focused primarily on the physical distribution of news content, such as the placement of news bureaus and the flow of information between different regions (Galtung & Ruge, 1965). Researchers then began focusing on the logistical aspects of news production, and the ways in which these processes influenced the representation of different regions and communities (Paterson, 1994). More recently, the interest has shifted to the social and cultural factors that shape the distribution of news content (for an overview of some of these, see Gutsche & Hess, 2018). Over the years, most research in this area has converged around the idea that news content is highly unevenly distributed, with some regions and communities receiving much more news coverage than others (Chang, 1998). This is particularly evident in the case of news about African countries, which are routinely underrepresented in the news media, both globally and in Africa (Wu, 2000), and, when featured, they are often reduced to cliché images (Evans & Glenn, 2010).

Scholars have put forward a range of explanations as to why African countries are often absent from the news. Some of these reasons are described as "structural." For example, Chang (1998) has shown that "richer" countries in the Global North get significantly more media attention than "poorer" ones in the South. This is exacerbated by the fact that many news organisations depend on news content provided by news agencies, global and local, to report on what is happening at home and abroad (Paterson, 2011). This includes most African newsrooms, which oftentimes lack the financial resources to report on domestic and continental affairs and are therefore highly reliant on content produced by global news agencies (Serwornoo, 2019). These agencies, which have long been shown to lack African voices (Bunce, 2010), have also been reducing their operations in recent years (Boyd-Barrett, 2010), thus further limiting their ability to cover the continent at scale. Taking stock of all this, Wahutu (2017, p. 41) concludes that "African news organisations are lagging behind in the production of knowledge about events unfolding in the rest of the continent" and attributes this, partly, to elites' preference for content about and from the Global North, which "places voices from the metropole at the status of the universal standard.''

The limited coverage of African countries, peoples, and issues by most African news outlets could also be conceptualised as a type of "news desert," one that is not characterised by information voids at a local/community level, but one that affects a larger geographic unit: the whole continent. In the existing literature on news deserts, the interest has been in local information or news produced from, about, and for a "community." The dimensions of these communities, however, have never been clearly delineated. We contend that it is possible to think of communities at different levels, from neighbourhoods to cities to nation-states to "ethnoscapes" (Appadurai, 1996), and news deserts might form at any of these levels. What existing research suggests is that, because of a plurality of factors, certain parts of the continent (e.g., entire countries or large urban centres) receive scarce media attention. This limits the ability of citizens across the continent to, paraphrasing Abernathy (2020), access credible and comprehensive news and information, which is an important pre-requisite for a better understanding of individuals and institutions across countries. To put the idea to the test, we ask:

RQ1: To what extent can we say that online news deserts at a continental level exist in Africa?

2.2. News Deserts Online at a Domestic Level

While research on the news about Africa in African media is relatively commonplace (e.g., de Beer, 2010; Wahutu, 2018), much less has been written on the coverage of domestic affairs (at a national or local level) by news outlets across the continent. In most countries in Africa, local news coverage has traditionally been the remit of community and local radio stations (and, to some extent, television stations), many of which broadcast in vernacular languages and sometimes have a wider reach and impact than newspapers and websites publishing content in English, French, and other languages imposed onto local communities by colonial powers. The impact and importance of local and community radio stations across Africa are well-documented, from helping disseminate agricultural information in Ghana (Zakariah,

2020) to broadcasting relevant news to women in Niger (Heywood, 2020) or contributing to inter-ethnic dialogue in Zimbabwe (Mathe & Motsaathebe, 2023). Radio remains one of the most important sources of news for many Africans, even after taking into consideration that listenership levels have been decreasing slowly in recent years, having gone from 77% of regular listeners in 2008–2009 to around 69% in 2022 (Afrobarometer, 2008, 2022).

Despite playing a crucial role in the dissemination of local news, the distribution of community and local radio stations on the continent is uneven. For example, some parts of South Sudan, to name one country, lack any form of local media, including radio, which puts large areas of the country in a severe media deficit, understood as the ability to access news and information of any sort (Southwood, 2018). Even in countries with a longer tradition of local and community radio, such as Kenya or Zimbabwe, there are limited numbers of stations, and multiple communities and linguistic groups remain unserved. In 2022, there were only 14 licensed community radio stations in Zimbabwe (Mathe & Motsaathebe, 2023), while in Kenya the number stood at 36 in 2017 (Kimani, 2020).

Comparing the impact that the absence/presence of local and community radio stations has on the communities they try to serve is an important research enterprise that has not been undertaken. Many reasons might explain such a gap in knowledge, including the difficulty of systematically gathering data across countries. Such a study would fit within the parameters of existing research on news deserts, as it would focus on local (and hyperlocal) news production and dissemination. However, as noted earlier, in this article, we seek to expand the concept of news deserts to also account for information voids at other levels, including the domestic/national/country level. In other words, when news organisations of country X report on events that are happening in country X, are there certain geographic areas that can be considered "domestic news deserts"? These would be geographic spaces within country X that are rarely reported on. We propose to explore this within the online news space with the following research question:

RQ2: To what extent can we say that online news deserts exist in domestic contexts in Africa?

3. Methods

This article uses computer-assisted approaches to map the extent to which online news deserts exist in the coverage of Africa by African news websites. In doing so, we follow Lindgren and Wong (2012) when they write: "Want to understand local news? Make a map." While this approach is relatively common among news geographers (see Herzog, 2003), it is not equally common in studies on news deserts. In a review of methodological approaches to studying local news deserts, Gulyás (2021) found that case studies, analysis of individual outlets, and media ecologies are predominant. While some studies focus on content, none takes a cross-national comparative approach as we do in this article.

We decided to focus our analysis on online news content for two reasons. On the one hand, focusing on online news offered us the possibility of collecting large amounts of data from multiple countries. On the other hand, there is evidence of the growing importance of online media as a news source across the continent. According to recent survey data from 34 African countries by Afrobarometer (2022), an increasing number of media users are turning to social media and websites to get their news. Of those surveyed in 2022, 38% said they regularly get news online (and 42% said they get news from social media). In some countries, the figures for online news consumption are much higher: 78% in Gabon, 55% in Côte d'Ivoire, or 82% in Mauritius. Values do differ across countries, in part because internet access remains very costly in many parts of the continent and broadband connectivity is not widely available everywhere.

3.1. Data Collection

We compiled a list of news websites from 39 African countries (see Tables A1 and A2 in the Supplementary File) by drawing on existing compendia of news organisations such as those curated by the Media Institute of Southern Africa, those managed by the public through services like Wikipedia, and those available on for-profit websites, such as AllAfrica. We then expanded this list by computationally identifying additional relevant websites with Amazon's Alexa web traffic monitoring tool. The resulting list was then manually inspected to retain only news websites. In selecting sources, a broad understanding of "news websites" was used. Our corpus, therefore, includes some well-established news outlets (e.g., South Africa's IOL), as well as news aggregators (e.g., TUKO) and specialised websites (e.g., GH Gossip). After the manual screening, over 1,200 websites were retained. The list reflects the diversity of media systems. Larger and more media-saturated countries, like Nigeria (150 websites) or Senegal (113), are more prominent than smaller ones (Burundi, for example, with 17 websites, 16 of which are in French and one of which is in English).

Using the list of websites as a starting point, we built a web crawler in the R programming language to visit each website twice a day to identify newly published content, and a web scraper to download the text of news stories as well as relevant metadata. We repeated the process twice daily over the course of three months, from March to May 2021 for the English corpus, and from April to May 2021 for the French one (for distribution of news over time, see Figure A1 in the Supplementary File). After removing duplicates and stories shorter than 15 words, we ended up with $N = 519,004$ pieces (47% in

French and 53% in English). When scraping content from these websites, no restrictive criteria were used. That means that our corpus includes both content written by reporters and journalists in the news organisations we monitored and content drawn from domestic, regional, and global news agencies. By following this approach, we can have a more comprehensive view of all content published online by African news websites.

While there are limitations to this approach, including the fact that some relevant websites that were pay-walled at the time of data collection (e.g., Daily Maverick in South Africa or Nation in Kenya) cannot be included in the sample, we were able to overcome problems with widely-used news content databases such as Factiva or Nexis, which have a limited range of African news sources (Madrid-Morales, 2020). Other limitations of our approach include the lack of material in languages other than French and English. This might have excluded from our analysis news content that is more localised, less dependent on foreign news agencies, and, potentially, more focused on local news. That said, focusing on English and French allows us to include a larger number of sources, given that those are the two prevailing languages in which news content is published in most of the countries we include in the sample and facilitates cross-national comparisons.

3.2. Data Analysis

We analysed data in three stages. First, and to address RQ1, we used a multilingual lexicon (English and French) of world cities (GeoNames, 2023) with 11,120 entries to count how often cities were mentioned in news stories. To do this, we used a custom-built Python script to identify exact matches of city names. We counted the mentions of cities anywhere in the article. This means that, in some cases, cities might be mentioned in the dateline, while in others mentions can occur in the body of the news story. Second, and to answer RQ2, we focused on Nigeria and South Africa. We selected these countries because they had the largest number of data sources in the corpus ($n_{Nigeria}$ = 150 and $n_{South\ Africa}$ = 105) and because they offered contrasting examples. South Africa has multiple local and hyperlocal news websites, as opposed to Nigeria, where news production is highly concentrated in large urban centres. The analysis at this stage used a Lexicon of more specific locative information for each country. Finally, we used 2021 UN population density data to explore the association between geographic mentions and population density.

4. Findings

In line with the two research questions, we structure this section into two parts. First, we present evidence of the existence of online news deserts at a continental level by looking at news about Africa across three dozen African countries. We then narrow our focus on Nigeria and South Africa to describe online news deserts at a domestic level.

4.1. Online News Deserts at a Continental Level

As shown in Figure 1, which presents the location of the most frequently mentioned cities in the corpus (the size of the circles is proportional to the number of times they are mentioned), there is a high imbalance in representations of cities around the globe. Cities in the Global North, such as Paris (10,813 mentions) or Barcelona (4,115), are clearly prominent. There are also some often-mentioned African cities, such as Lagos (14,500) and Johannesburg (2,773), and several African capital cities, like Nairobi (5,037), Kinshasa (4,710), or Harare (2,675). Other cities in the Global South are much less prominent. For example, Buenos Aires (86), Rio de Janeiro (148), Kuala Lumpur (45), and Phnom Penh (23). If we look at mentions of African cities only (Figure 2), cities in the southern part of West Africa, around the Gulf of Guinea, are mentioned more often than those in most of Central Africa. We see a similar pattern in the Horn of Africa as well as in East Africa. Overall, cities in large media markets, such as Nigeria and South Africa, where
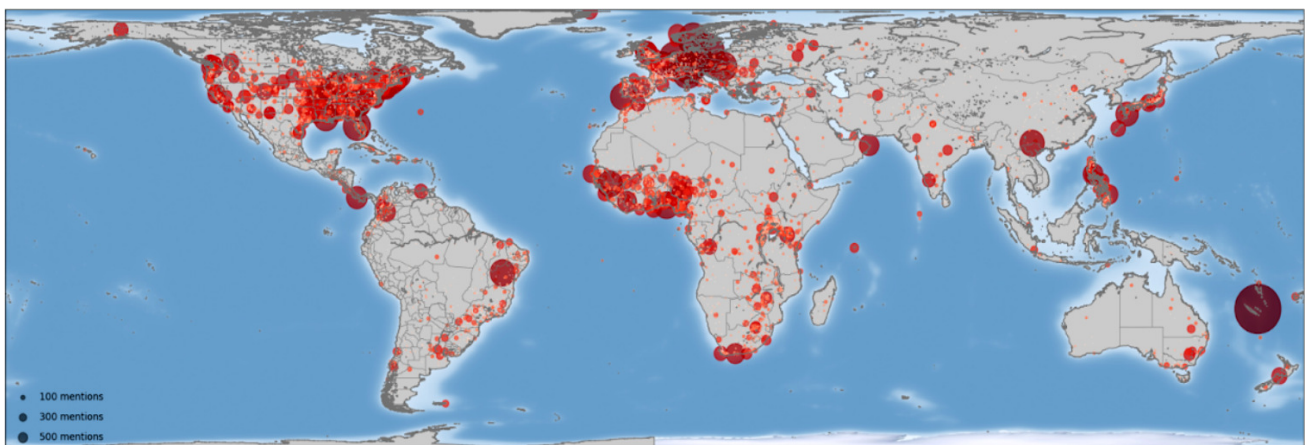

Figure 1. Mentions of world cities in African news websites.

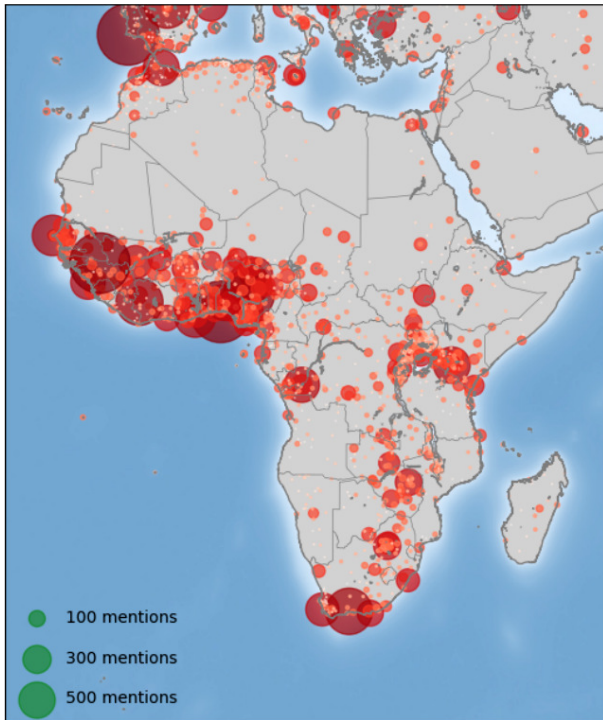a lot of news production is concentrated, are mentioned more often.

Figure 2. Mentions of African cities in African news websites.

With RQ1, which was built on previous research on the geography of news in Africa, we asked whether news deserts exist at a continental level in African news websites. As Figure 2 shows, there are large sways of the continent that remain under-reported. Some of these news deserts coincide with geographical spaces with low population density levels. In some cases, however, highly populated communities (either urban or rural) are largely absent from news coverage. In news about Ethiopia, mentions of cities other than Addis Ababa, the capital, are minimal. We can see the same in the coverage of Mauritania, Botswana, and Sudan, to name just a few examples. There are many factors that help explain these differences. Some of them could be related to our analytical approach, as we discuss at the end of this article, but others could be connected to some of the structural imbalances in news reporting of Africa that we described earlier, including the lack of news websites focused on covering local information. This does not appear to affect only small communities, but also some large urban centres. Regardless of the cause, these data seem to support the idea that, in their news coverage of the continent, African news websites media are contributing to the perpetuation of online news deserts.

4.2. Online News Deserts at a Domestic Level: The Cases of Nigeria and South Africa

To address RQ2, we focus on Nigeria and South Africa, two of the largest media hubs on the continent. In our dataset, Nigeria is the country with the highest number of news outlets and tops the list by total number of news items (105,243). South Africa is not far behind, with 105 news outlets and 76,766 news items (see Table A3 in the Supplementary File). In this section, for each of the two countries, we (a) look at how often they are mentioned in news websites in other African countries, (b) count mentions of cities on Nigerian/South African websites, and (c) examine the relationship between population and domestic news coverage.

4.2.1. Nigeria

We identified 3,268 (0.8%) stories that mention "Nigeria" in the sub-corpus of non-Nigerian websites (n = 413,761). There are slightly more mentions in the English-language sub-corpus (69%) than in the French-language one (31%). A significant number of stories in French are published by media in neighbouring countries where French is widely spoken (e.g., 229 stories in Senegal, 171 in Cameroon, 77 in Benin, 29 in Niger, and 18 in Chad). As shown in Table 1, it is in Ghana where most mentions of Nigeria can be found (1,341). In the English-language corpus, Ghana is followed by South Africa (299) and Kenya (212). These mentions of Nigeria, tend to be unspecific (i.e., no city is mentioned alongside the country). Lagos is only mentioned 149 times, followed by Abuja 109. Overall, only 16% of the articles (525) mention a Nigerian city after having mentioned Nigeria. If we look at Nigerian websites only, around 37% of news stories include the word "Nigeria," whereas 41% mention a Nigerian city (see Figure A2 in the Supplementary File).

Some of the differences in city mentions between African and Nigerian websites (see Table 2) can be explained by the "importance" of a given geographic space, which can be measured in terms of population density, in line with some of the previous work on the determinant of news flows (Wu, 2000). This approach connects the notion of "news deserts" to human geography, via population density, potentially making (news) deserts less of a metaphorical concept. As shown in Table 3, the Pearson correlation coefficient between the number of mentions per city and their population density in Nigeria is around 0.8. Similarly, Figure 3 shows that, if we overlap the population density map of Nigeria (in red) with the more precise mentions of smaller locations, the map shows some interesting connections. Beyond the clear prominence of Lagos, the administrative city of Abuja in the centre of the country, and further north, Kaduna and Kano, the map reveals several densely populated areas where news appears to be scarce online.

4.2.2. South Africa

South Africa, which has three capital cities (Pretoria, Bloemfontein, and Cape Town), offers an interesting case for analysis, given that the most populous city in

Table 1. Top 20 African news websites by number of mentions of Nigeria.

Source name	Source country	Mentions of Nigeria
MyJoyOnline	Ghana	516
GhanaWeb	Ghana	293
COCORIOKO	Sierra Leone	64
GH Gossip	Ghana	63
Tuko News	Kenya	58
YEN News	Ghana	47
IOL	South Africa	41
Ghana Guardian	Ghana	34
Ghbase	Ghana	32
The Herald Ghana	Ghana	29
Briefly News	South Africa	29
South Africa Today	South Africa	29
The Star	Kenya	28
AfrikMag	Ivory Coast	27
BusinessLIVE	South Africa	26
AdomOnline	Ghana	26
Asembi	Ghana	25
Citi Newsroom	Ghana	24
SowetanLIVE	South Africa	23
Graphic Online	Ghana	22

the country (Johannesburg) is none of the three. When looking at news about South Africa on African news websites, less than 0.04% (3,363 stories) include the words "South Africa" or "Afrique du Sud" (Table 4). Those news stories were published in 317 different news outlets, from 27 countries, with Zimbabwe (1,015 news stories), Nigeria (889), Ghana (565), Kenya (259), and Uganda (112) topping the list. As was the case with Nigeria, neighbouring countries also mentioned South Africa with some frequency: Namibia on 44 occasions, Botswana on 21, and Lesotho on 52. Mentions of South African cities on African news websites do not correspond with mentions within South Africa (see Table 5). For instance, Johannesburg, which is South Africa's financial hub, has more prominence in other countries' coverage than at home. Two of the other capital cities (Pretoria and Bloemfontein) are often mentioned overseas and domestically, but they are not among the top three.

Table 2. Top mentions of selected Nigerian cities in Nigerian and African news websites.

City name	Mentions in African news websites	Mentions in Nigerian news websites
Lagos	460	12,188
Abuja	240	8,321
Kaduna	142	5,913
Kano	103	3,555
Enugu	49	2,718
Owerri	91	1,968
Ibadan	29	1,809
Port Harcourt	20	1,611
Sokoto	22	1,535
Gombe	165	764
Aba	290	592

Table 3. Correlation matrix between population and mentions of Nigerian cities in news websites.

	Population density	Mentions in Nigerian websites	Mentions in other African countries
Population density	1.000	—	—
Mentions in Nigerian websites	0.775	1.000	—
Mentions in other African countries	0.724	0.818	1.000

Figure 3. Overlap between population density (in red) and mentions of geographical location (in blue and orange). Notes: Darker shades of red represent higher density levels; bigger blue circles indicate more mentions.

There are 76,766 stories from 105 South African outlets in the corpus. Of these, only 6,158 mention South Africa, while 13,011 mention at least one city. This rep-resents a wider gap than in the Nigerian sub-corpus. Some of the largest news websites in the South African sub-corpus, (e.g., IOL or BusinessLIVE, both of which

Table 4. Top 20 African news websites by number of mentions of South Africa.

Source name	Source country	Mentions of South Africa
iHarare	Zimbabwe	322
MyJoyOnline	Ghana	140
Zimbabwe Situation	Zimbabwe	85
GhanaWeb	Ghana	85
Nigeria Sun	Nigeria	82
Nehanda Radio	Zimbabwe	77
ZimEye	Zimbabwe	66
Xtra	Nigeria	58
GhanaGuardian	Ghana	55
The Zimbabwe Mail	Zimbabwe	51
Punch	Nigeria	47
The Guardian Nigeria	Nigeria	47
The Star	Kenya	44
The Zimbabwean	Zimbabwe	38
ZimLive	Zimbabwe	36
Graphic Online	Ghana	35
Zimbabwe Voice	Zimbabwe	35
Akahi News	Nigeria	33
AdomOnline	Ghana	33
Zimbabwe Star	Zimbabwe	33

Table 5. Top mentions of selected South African cities in South African and African news websites.

City name	Mentions in African news websites	Mentions in South African news websites
Cape Town	325	3,088
Johannesburg	368	1,676
Durban	142	1,541
Pretoria	150	1,226
Gqeberha	—	947
Soweto	81	542
Stellenbosch	56	537
Port Elizabeth	—	528
Bloemfontein	25	367
Uitenhage/Kariega	—	109

Note: Gqeberha and Port Elizabeth refer to the same city and often appear together in the same article.

Table 6. Correlation matrix between population and mentions of South African cities in news websites.

	Population density	Mentions in South African websites	Mentions in other African countries
Population density	1.000	—	—
Mentions in South African websites	0.663	1.000	—
Mentions in other African countries	0.013	0.274	1.000

have a national audience) mention very few South African cities (see Figure A3 in the Supplementary File). This comes in sharp contrast with others, such as MyPE, which is based in the city of Gqeberha (also known as Port Elizabeth or PE) and is an example of a local digital news outlet. To explore the relationship between men-

tions and population size, we generated a correlation matrix (see Table 6), where we can see that there is a Pearson correlation of 0.7 between mentions and population size. We also see these patterns in Figure 4, particularly for cities like Durban and Johannesburg, however not as much in the case of Cape Town.
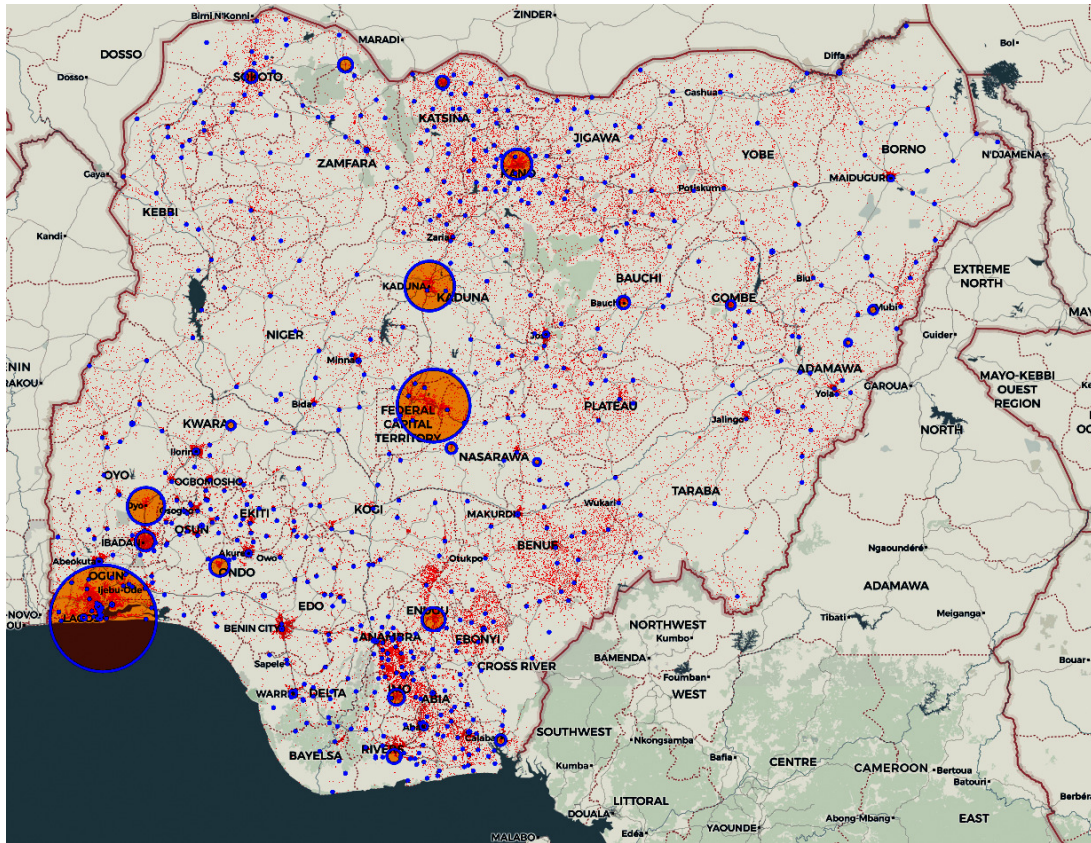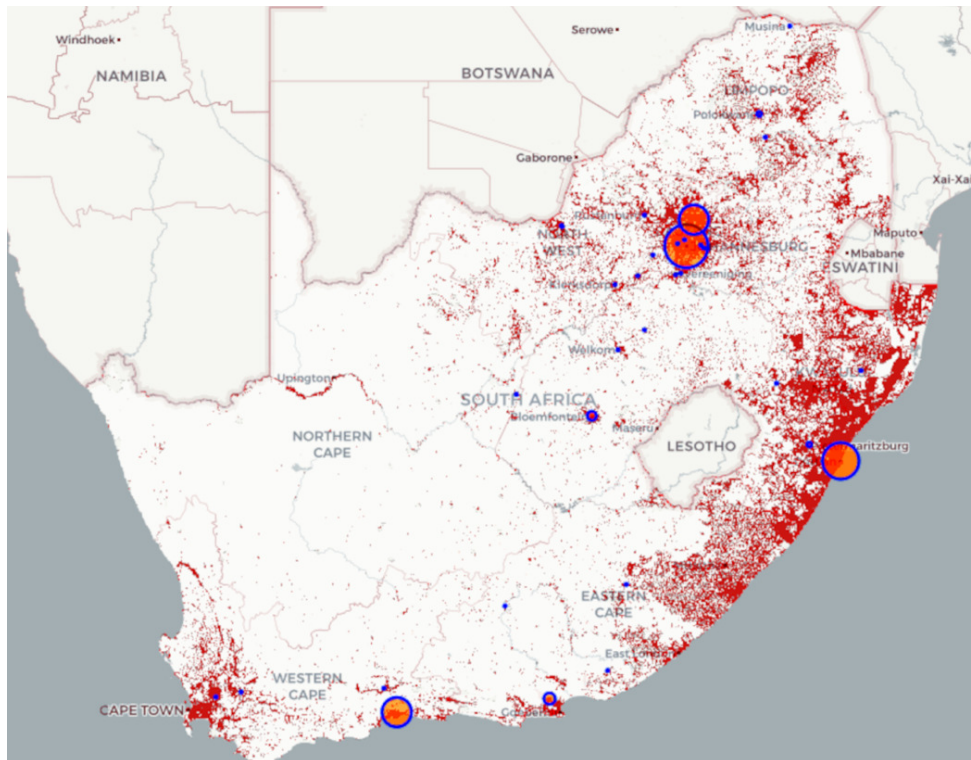

Figure 4. Overlap of population density (in red) with mentions of geographical location (in blue and orange) in South Africa. Notes: Darker shades of red represent higher density levels; bigger blue circles indicate more mentions.

5. Discussion and Conclusions

This article has explored the applicability of the concept of "news deserts" to the context of African news websites by computationally examining their content. In so doing, we depart from existing research on news deserts in three ways. First, we look at a region that has not been explored in previous studies. Second, we infer the presence/absence of news deserts by looking at news content that mentions certain geographical spaces, rather than by looking at changes in the structure of the local media ecosystem. And third, we contend that, while research on news deserts has mostly focused on local news deserts, conceptually, it should be possible to think of news deserts emerging or existing at multiple geographical levels. Our data suggest that, in the coverage of Africa by African news websites, news deserts can be seen at both continental and domestic levels.

At a continental level, large urban centres, such as Angola's second-largest city (Cabinda, population: 739,182) or Ethiopia's (Dire Dawa, population: 493,000), are hardly in the news. At the same time, however, African news websites routinely mention cities in the Global North. The reliance of African news websites on foreign news agencies, whose focus is not on covering Africa, and the lack of financial resources to report the continent, including neighbouring countries can be put forward as reasons for the existence of continental news deserts. These findings connect with Chang's (1998) work on the structural inequalities in global news coverage. These spatial inequalities at a continental level worsen the conditions for the circulation of social information, for the imagining of communities (Anderson, 1983), and for the formation of public political debates that integrate online mediated communication processes with the geographic and physical spaces of social interaction (Brantner et al., 2021).

At a domestic level, we find that both Nigerian and South African media, the two countries we focused on in this article, tend not to mention local cities often, with this pattern being more pronounced in the case of South Africa. This would seem to indicate that, indeed, online news deserts exist at a domestic level, even though further research might be needed to rule out other possible explanations. For example, it is possible that many news organisations with an online presence rely on content from foreign news agencies, which do not tend to focus on local news. It could also be that many publications are focused on topics that are not connected to a specific location (e.g., celebrities and gossip, lifestyle, etc.) or that their focus is outside the country (e.g., sports news might focus on European football). It is important to note that the focus of our analysis is on online news content. This means that our data cannot address the question of whether news delivered via other types of media, such as radio or television, might have a more comprehensive coverage of domestic news than what our analysis of news websites reveals. Future research on this area

should consider cross-media analyses to better understand the presence/absence of news deserts at the local level, in line with previous research on the topic.

Using mentions of cities and other geographic locations to explore the existence of news deserts, as we do in this article, comes with limitations. First, it is possible that the lexicons of city names that we used do not include enough detail about the countries we are studying and, therefore, that our scripts fail to identify mentions of some spaces. Similarly, and particularly in the analysis of data from South Africa, our approach is prone to identifying large numbers of false positives: For example, places like George in the Western Cape, or Discovery, a suburb of Johannesburg, might be flagged as occurring very often, but not because news stories mention the location, but a homonymous word. In our analysis, we employ a semi-supervised machine learning approach to avoid identifying some of these false positives, but a more refined analysis would be useful in future studies.

For a more nuanced picture of the extent to which news deserts exist on news websites on the continent, future studies could benefit from using larger news corpora that cover a wider time span and include content in vernacular languages. Such a rich dataset could then be used to explore other questions that are of interest to news geographers, including: How are these locations talked about in the media? Furthermore, because our focus has been on English and French language content, the findings presented here are only representative of a small fraction of the African media ecosystem, one that is favoured by elites, whose news consumption preferences might differ from those of other sectors of the population. Notwithstanding this and other limitations, we contend that the data presented in this article hints at the need to broaden the understanding of the concept of news deserts to include different expressions of information voids.

Conflict of Interests

The authors declare no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the authors (unedited).

References

Abernathy, P. M. (2018). *The expanding news desert*. Centre for Innovation and Sustainability in Local Media.

Abernathy, P. M. (2020). *News deserts and ghost newspapers: Will local news survive?* The University of North Carolina Press.

Afrobarometer. (2008). *Merged round 4 data (20 countries) (2008)* [Data set]. https://www.afrobarometer.org/survey-resource/merged-round-4-data-20-countries-2008

Afrobarometer. (2022). *Merged round 8 data (34 countries) (2022)* [Data set]. https://www.afrobarometer.org/survey-resource/merged-round-8-data-34-countries-2022

Anderson, B. (1983). *Imagined communities: Reflections on the origin and spread of nationalism*. Verso.

Appadurai, A. (1996). *Modernity at large: Cultural dimensions of globalization*. University of Minnesota Press.

Barnes, R., Dugmore, H., English, P., Natoli, R., & Stephens, E. J. (2022). "This is ridiculous—I need to start a paper…": An exploration of aims and intentions of regional print proprietors of post-Covid start-up newspapers. *Media International Australia*, *184*(1), 21–34. https://doi.org/10.1177/1329878X221088047

Berger, G. (2011). Empowering the youth as citizen journalists: A South African experience. *Journalism*, *12*(6), 708–726. https://doi.org/10.1177/1464884911405466

Boyd-Barrett, O. (Ed.). (2010). *News agencies in the turbulent era of the internet*. Agència Catalana de Notícies.

Brantner, C., Rodríguez-Amat, J. R., & Belinskaya, Y. (2021). Structures of the public sphere: Contested spaces as assembled interfaces. *Media and Communication*, *9*(3), 16–27. https://doi.org/10.17645/mac.v9i3.3932

Bunce, M. (2010). "This place used to be a white British boys'" club: Reporting dynamics and cultural clash at an international news bureau in Nairobi. *The Round Table*, *99*(410), 515–528. https://doi.org/10.1080/00358533.2010.509950

Chakrabarty, D. (2008). *Provincializing Europe*. Princeton University Press.

Chang, T.-K. (1998). All countries not created equal to be news world system and international communication. *Communication Research*, *25*(5), 528–563. https://doi.org/10.1177/009365098025005004

Conroy-Krutz, J., & Koné, J. (2020). *Promise and peril: In changing media landscape, Africans are concerned about social media but opposed to restricting access* (Afrobarometer Dispatch No. 410). Afrobarometer. https://www.afrobarometer.org/wp-content/uploads/2022/02/ad410-promise_and_peril-africas_changing_media_landscape-afrobarometer_dispatch-2dec20.pdf

Cresswell, T. (2004). *Place: A short introduction*. Blackwell.

da Costa, P. (2012). The growing pains of community radio in Africa. *Nordicom Review*, *33*, 135–147. https://doi.org/10.2478/nor-2013-0031

da Silva, C. E. L., & Pimenta, A. (2020). Local news deserts in Brazil: Historical and contemporary perspectives. In Á. Gulyás & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 44–53). Routledge.

de Beer, A. S. (2010). News from and in the "dark continent." *Journalism Studies*, *11*(4), 596–609. https://doi.org/10.1080/14616701003638509

Duncan, J. (2015). Rethinking media diversity policy on the community press in South Africa. *Communicatio*, *41*(4), 423–443. https://doi.org/10.1080/02500167.2015.1117504

El Zein, H. M., & Cooper, A. (1992). *New York Times* coverage of Africa, 1976–1990. In B. G. Hawk (Ed.), *Africa's media image* (pp. 133–146). Praeger.

Evans, M., & Glenn, I. (2010). "TIA—This is Africa": Afropessimism in twenty-first-century narrative film. *Black Camera*, *2*(1), 14–35. https://doi.org/10.2979/BLC.2010.2.1.14

Ferrier, M. (2014). *The media deserts project: Monitoring community news and information needs using geographic information system technologies*. Unpublished manuscript.

Ferrucci, P., & Alaimo, K. I. (2020). Escaping the news desert: Nonprofit news and open-system journalism organizations. *Journalism*, *21*(4), 489–506. https://doi.org/10.1177/1464884919886437

Finneman, T., Heckman, M., & E. Walck, P. (2022). Reimagining journalistic roles: How student journalists are taking on the U.S. news desert crisis. *Journalism Studies*, *23*(3), 338–355. https://doi.org/10.1080/1461670X.2021.2023323

Galtung, J., & Ruge, M. H. (1965). The structure of foreign news: The presentation of the Congo, Cuba and Cyprus crises in four Norwegian newspapers. *Journal of Peace Research*, *2*(1), 64–90. https://doi.org/10.1177/002234336500200104

GeoNames. (2023). *Free gazetteer data* [Data set]. http://download.geonames.org/export/dump

Gulyás, Á. (2021). Local news deserts. In D. Harte & R. Matthews (Eds.), *Reappraising local and community news in the UK* (pp. 29–41). Routledge.

Gulyás, Á., & Baines, D. (2020). Introduction: Demarcating the field of local media and journalism. In Á. Gulyás & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 1–22). Routledge.

Gutsche, R. E., Jr., & Hess, K. (2018). *Geographies of journalism: The imaginative power of place in making digital news*. Routledge.

Hallin, D. C., & Mancini, P. (Eds.). (2011). *Comparing media systems beyond the Western world* (1st ed.). Cambridge University Press.

Herzog, D. (2003). *Mapping the news: Case studies in GIS and journalism*. ESRI Press.

Heywood, E. (2020). Radio journalism and women's empowerment in Niger. *Journalism Studies*, *21*(10), 1344–1362. https://doi.org/10.1080/1461670X.2020.1745668

Howells, R. (2015). *Journey to the centre of a news black*

hole: Examining the democratic deficit in a town with no newspaper [Unpublished doctoral dissertation]. Cardiff University.

Kalyango, Y., Jr., & Onyebadi, U. (2012). Thirty years of broadcasting Africa on U.S. network television news. *Journal of Broadcasting & Electronic Media*, *56*(4), 669–687. https://doi.org/10.1080/08838151.2012.732137

Kasoma, F. P. (1995). The role of the independent media in Africa's change to democracy. *Media, Culture & Society*, *17*(4), 537–555. https://doi.org/10.1177/016344395017004002

Kimani, R. N. (2020). The development of community broadcasting legislation in Kenya. In Á. Gulyás & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 112–121). Routledge.

Krüger, F. (2022). *Greening Africa's news deserts: The search for sustainable local media in sub-Saharan Africa*. Konrad Adenauer Stiftung.

Lindgren, A., & Wong, C. (2012). *Want to understand local news? Make a map*. Local News Research Project. https://localnewsresearchproject.ca/2012/07/27/want-to-understand-local-news-make-a-map

Madrid-Morales, D. (2020). Using computational text analysis tools to study African online news content. *African Journalism Studies*, *41*(4), 68–82. https://doi.org/10.1080/23743670.2020.1820885

Manyozo, L. (2009). Mobilizing rural and community radio in Africa. *Ecquid Novi: African Journalism Studies*, *30*(1), 1–23. https://doi.org/10.1080/02560054.2009.9653389

Mathe, L., & Motsaathebe, G. (2023). The political economy of Indigenous local media for minority languages in Zimbabwe: A case of Lyeja FM community radio. *Journal of Asian and African Studies*. Advance online publication. https://doi.org/10.1177/00219096231160233

Mathews, N. (2022). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265. https://doi.org/10.1177/1464884920957885

Moreira, S. V., Del Bianco, N. R., & dos Santos Martins, C. F. (2021). Audiovisual media in the countryside of Brazil and the production of local information. *Intercom: Revista Brasileira de Ciências da Comunicação*, *44*, 113–135. https://doi.org/10.1590/1809-5844202126

Newell, S. (2016). Paradoxes of press freedom in Colonial West Africa. *Media History*, *22*(1), 101–122. https://doi.org/10.1080/13688804.2015.1084870

Nygren, G., Leckner, S., & Tenor, C. (2018). Hyperlocals and legacy media: Media ecologies in transition. *Nordicom Review*, *39*(1), 33–49. https://doi.org/10.1515/nor-2017-0419

Paterson, C. (1994). Who owns TV images from Africa? *Issue: A Journal of Opinion*, *22*(1), 15–18.

Paterson, C. (2011). *The international television news agencies: The world from London*. Peter Lang.

Serwornoo, M. Y. W. (2019). The coverage of Africa in Ghanaian newspapers: The dominant Western voice in the continent's coverage. *Journalism*, *22*(12), 3013–3030. https://doi.org/10.1177/1464884919887311

Southwood, R. (2018). *Africa's media deficit and access to knowledge*. Balancing Act.

Wahutu, j. S. (2017). What African media? Rethinking research on Africa's press. *Global Media and Communication*, *14*(1), 31–45. https://doi.org/10.1177/1742766517734252

Wahutu, j. S. (2018). Representations of Africa in African media: The case of the Darfur violence. *African Affairs*, *117*(466), 44–61. https://doi.org/10.1093/afraf/adx039

Wu, H. D. (2000). Systemic determinants of international news coverage: A comparison of 38 countries. *Journal of Communication*, *50*(2), 110–130. https://doi.org/10.1111/j.1460-2466.2000.tb02844.x

Zakariah, A. T. (2020). Participation in local radio agricultural broadcasts and message adoption among rural farmers in Northern Ghana. In Á. Gulyás & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 457–467). Routledge.

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Article

Investigating News Deserts on the Content Level: Geographical Diversity in Swiss News Media

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Abstract

With its diverse landscape of regional and local news media, Switzerland seems far from being a news desert. However, the centralization of editorial offices following the economic crisis of journalism has led to news outlets that share most of their content but appear under different names in different regions. This development has fostered fears about declining geographical diversity at the regional level in the news coverage of Swiss news media. We argue that this centralization by regional news outlets affects news content; it constitutes a specific process of news desertification, which is not aptly captured by news desert research's focus at the outlet level. With our explorative study, we aim to analyze news deserts at the content level. We apply an automated geoparser to a manually annotated dataset of local news media articles (n = 5,173) published by six regional news outlets of two news organizations between 2016 and 2021 to determine the extent and development of geographical diversity in Swiss regional news media. The geoparser uses a weighted gazetteer-based approach to determine the most relevant locations of news articles within Switzerland. We find early signs of news desertification. At the output level, we observe a declining number of articles published by the analyzed outlets. At the performance level, we see a declining number of unique place names in the articles and more mentions per article. However, the diversity of place names in the coverage remains stable.

Keywords

geographical diversity; local journalism; media content concentration; news desert; news desertification; Switzerland

Issue

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1. Introduction

The seminal project The Expanding News Desert, which has tracked the availability of local news in the US since 2016, defines a news desert as "a community, either rural or urban, with limited access to the sort of credible and comprehensive news and information that feeds democracy at the grassroots level" (Abernathy, 2020, p. 18). This definition highlights the vital function of news media for modern democracies, which includes positive effects on political knowledge (Ohme, 2020; van Erkel & Van Aelst, 2021) and political participation (Andersen et al., 2016; Kübler & Goodman, 2019; Strömbäck et al.,

2018). With their specific geo-social context, regional and local media form one particularly important type of news media that fulfills this function. The terms regional and local media are usually used interchangeably; nevertheless, while there is a large variety of structure, forms, etc. for the regional and local media, this type of media, unlike international and national news media, relates to a specific locality below the national level in its production and distribution (Gulyas & Baines, 2020). Regional and local media address communities with shared (and complex) understandings of geographical and symbolic spatial boundaries (Weber & Mathews, 2022). Regional and local media are particularly shown to be among

the primary sources of information for politics (Kübler & Goodman, 2019; Nielsen, 2015). Thus, by covering local news and events, the news media foster political knowledge and participation on the local level (Kübler & Goodman, 2019; Magasic & Hess, 2021).

However, local news media find it increasingly difficult to survive because of low audience traffic for local news (Hindman, 2018) and insufficient business models (Jenkins & Nielsen, 2020; Nielsen, 2015). Thus, an increasing number of communities or areas no longer have access to credible and comprehensive news about events in their region. Even though most people have access to an abundance of news beyond their region, provided by internationally renowned news brands, news aggregators, or social media, they might lack the necessary information to participate in political processes at the local level.

Especially in the US, concerns about the harmful effects of growing news deserts have been prominently articulated by scholars (Abernathy, 2020; Darr et al., 2018; Ferrier et al., 2016; Hayes & Lawless, 2018; Napoli et al., 2017). By contrast, countries beyond heavily commercialized media systems like the US, such as the smaller countries from democratic-corporatist countries in Western and Northern Europe (Hallin & Mancini, 2004), are thought to still offer relatively good conditions for local journalism. In Norway, for instance, the willingness to pay is quite high, and people rather frequently subscribe to various local news outlets (Newman et al., 2021). Similarly, Switzerland is often perceived as a country with a diverse landscape of regional and local news media and thus seemingly far from being a news desert. However, the closure of outlets and increasingly concentrated media ownership have also taken place in Switzerland and have accelerated in recent years (Vogler et al., 2020). As in other small media markets, such as Flanders (Belgium; Hendrickx & Ranaivoson, 2021), local news, in particular, is increasingly provided by centralized editorial offices, which has led to seemingly independent news outlets that share most of their content but appear under different names in different regions (Vogler et al., 2020). This development has fostered fears about declining geographical diversity at the regional level in the news coverage of Swiss news media, with adverse effects on the political process. Swiss politicians, for instance, have already articulated concerns that, in some regions of Switzerland, only one newspaper or news outlet exists. Compared to other countries, this might seem like a trivial complaint. However, the direct democratic system, with its frequent referendums on multiple levels (i.e., national, cantonal or state, and municipal), depends on a functioning infrastructure of local news brands that produce substantial local news coverage.

We argue that news desert research has often focused on the outlet level by identifying places without a dedicated regional newspaper (or with a regional newspaper with declining circulation) and that it might have missed out on processes of news desertification at the content level. With our explorative study, we aim to analyze news deserts at the content level in Switzerland. We apply an automated geoparser to a manually coded dataset of local news media articles (n = 5,173) published by six regional news outlets between 2016 and 2021 to determine the extent and development of geographical diversity in regional news media in Switzerland. The selected outlets were independent in 2016 but were all integrated into two editorial offices during the period of investigation. Therefore, we investigate how media content concentration (Vogler et al., 2020) affects the geographical diversity in local news.

2. Conceptual Framework

Diversity in the news media is a multifaceted and multidimensional phenomenon (Loecherbach et al., 2020). From a normative perspective, diversity should occur not only at the structural level (i.e., a diversity of owners [and ownership] and brands) but also at the production level and the consumption level when it comes to media exposure and, above all, at the content level (Hendrickx et al., 2022). Research to date has been dominated by studies addressing news content diversity (Magin et al., 2023). Diversity in news coverage is essential for the media to fulfill its functions in modern democracies (Loecherbach et al., 2020; McQuail, 1992). By including a broad set of voices, topics, actors, or regions in their coverage, the news media contribute to a well-informed and participative citizenry (Andersen et al., 2016; van Erkel & Van Aelst, 2021), and by ensuring the representation of different parts of society, they also contribute to mutual understanding and integration (Masini et al., 2018; Vogler & Udris, 2021). A critical aspect of the diversity of news coverage is geographical, especially regional diversity, which is "rooted in the participatory liberal model of public discourse that emphasizes popular inclusion on different levels" (Humprecht & Esser, 2018, p. 1832). In spatial terms, to fulfill geographical diversity, news media should address a variety of places and spaces (e.g., cover international, national, and local news; Joris et al., 2020), and there should be diversity within each area (e.g., diversity of country mentions in foreign news coverage; cf. Wilke et al., 2012). This concept implies that news outlets, in their local news coverage, should not only focus on large and densely populated urban areas but should also include peripheral places in their coverage.

Diversity in the supply of local news is vital for local news to fulfill its functions for the political system, especially in countries with strong regional and municipal autonomy. However, the economic crisis of journalism threatens the diversity of the coverage, with local news being an area of particular concern (Finneman et al., 2022). Scholars have articulated concerns regarding the vanishing diversity of local news outlets under the terms "news desert" (Abernathy, 2020; Napoli et al., 2017)

or "local news crisis" (Toff & Mathews, 2021). In many media markets, local news outlets have been shut down or integrated into large media organizations with centralized editorial offices and a high degree of syndication or content sharing (Hendrickx & Ranaivoson, 2021; Sjøvaag, 2014; Toff & Mathews, 2021; Vogler et al., 2020). The decline of local news is shown to affect the political process negatively. Darr et al. (2018) demonstrate that newspaper closures in US counties foster polarized voting behavior. In their longitudinal study, Hayes and Lawless (2018) trace back reductions in citizens' political knowledge and participation to the declining coverage of congressional elections in local news.

One reason for the adverse effects of missing local news is the uniqueness of that news. At the national or international level, a variety of outlets often exists, but the local news in one region is often provided only by a single outlet. Therefore, diversity in local news must frequently be provided within an outlet. Kübler and Goodman (2019, p. 1) warn of "threats to local democracy via the territorial upscaling of media markets," as such upscaling usually includes a declining geographical diversity in news coverage. Even though a county or region might still have a local newspaper, certain parts of that region (e.g., its municipalities) might not receive any attention from the outlet. The affected communities will miss "the sort of credible and comprehensive news and information that feeds democracy at the grassroots level" (Abernathy, 2020, p. 18), thereby fulfilling the main criteria for living in a news desert.

Napoli et al. (2017) developed a threefold method of quantifying news deserts to account for the different dimensions of the problem, and their method can be scaled to analyze multiple communities. They suggest assessing the health of local journalism along the following dimensions (Napoli et al., 2017):

- Journalistic infrastructure: The number of local outlets in a community.
- Journalistic output: The number of articles produced by these local outlets.
- Journalistic performance: The qualitative aspects of the output.

As for the output and performance levels, Napoli et al. (2018) developed indicators for local journalism that addresses "critical information needs." Hence, they identified articles that could be considered local (as opposed to non-local) and that included certain topic areas (e.g., political life, environment and planning, or emergencies and risks but, for example, not sports). While it remains debatable which topics actually address critical information needs, this distinction points to the necessity of considering that not all local news is equally relevant. This relates to research on overall news performance, in which the topic or subject matter makes up an important dimension of either hard news or soft news (Reinemann et al., 2012). While soft news undoubtedly

can serve to reach and engage (local) audiences, it is the hard news, especially on political life, that links news to media users' rights and duties as citizens in their community. Against this normative background, media policy regulating local journalism is often designed. For instance, in Switzerland, regional TV stations are each assigned to one specific region and receive public funding to carry relevant local news; therefore, the regulator BAKOM in Switzerland regularly measures journalistic output and checks whether a news program carries at least 10 minutes of news per day that addresses the specific region and includes a hard news topic.

Up to now, local public spheres in general (Fischer et al., 2021), and news deserts in particular have mainly been quantified at the infrastructure level and rarely at the output and performance levels. Research on the temporal development leading to news deserts—which we refer to as news desertification—is even less common. Thus, the diagnosis of news deserts is usually based on the absence of a dedicated local news outlet in an area. Recently, news deserts and the crisis of local news have been studied more extensively, leading to a broader understanding of the phenomenon (e.g., Ferrucci & Alaimo, 2020; Mathews, 2022; Mathews & Ali, 2022). However, many of these studies focus on single cases (i.e., mostly clear cases without a dedicated newspaper). Thus, the research might miss nuances in the diagnosis, the evaluation of effects, and possible solutions and prevention of news deserts.

The absence of local news coverage or the shrinking diversity within local news coverage may also result from processes that are not visible at first glance, and not necessarily in the (very) small (hyper) local news media. In many media systems, slightly larger regional newspapers constitute important pillars of media ecosystems, as they provide citizens with a whole range of information on international, national, and local news. Examples include the *St. Louis Post-Dispatch* in the US, the *Birmingham Mail* in the UK, *Rheinische Post* in Germany, *Ouest France* in France, or *Berner Zeitung* in Switzerland (Umbricht & Esser, 2016). In her book on the role of place in journalism, Nikki Usher (2021) highlights the importance of "Goldilocks newspapers," which offer a "one-stop 'news report' available for their geographic region" and which are:

> Not big enough to claim national audiences but still big enough to serve a vital role in the larger national news ecology by being the authoritative voice of a city or region, surveilling a geographically specific part of the country. (Usher, 2021, p. 11).

Importantly, Usher (2021) reminds us that these types of newspapers are big enough to produce highly professional journalism, even in the regions, but they remain too small to really make ends meet in the digital attention economy that favors only the largest, usually truly national (or even international) players. Given

these economic constraints, one effect Usher (2021) observed is that cost-cutting leads these outlets to pull back from the more rural and suburban areas to focus on concentrated urban areas, thereby reducing geographical diversity in local journalism. Developments in other slightly smaller media markets, such as Germany, Belgium, and Switzerland, point in a similar direction. The sharing of content in regional outlets that centralized editorial offices deliver leads to a reduced number of individual new articles (declining journalistic output) and an increasing media content concentration (declining journalistic performance; Dogruel et al., 2019; Hendrickx & Ranaivoson, 2021; Vogler et al., 2020). However, the literature also suggests that the amount of regional or local journalism produced and the diversity within (the remaining) local news coverage depends on the ownership and business models of the relevant media company (Jenkins & Nielsen, 2020) and the specificities of local markets (Radcliffe & Ali, 2017; Usher, 2021). Thus, research ideally takes a comparative perspective by analyzing different local news outlets in different markets.

Overall, we argue that focusing on the infrastructure alone is not sufficient, as a diversity of brands might still exist, and by definition, these regions would not constitute deserts. We call for a broader perspective that focuses on the output and performance levels, where local news might be more visibly on the decline. We argue that focusing on regional diversity in news coverage helps detect early indicators of news desertification. We thus follow the approach advocated by Napoli et al. (2017) and analyze news deserts at the output and performance levels. Following the recent events in media markets outlined above, we see possible early warning signs of news desertification in our case of Switzerland. Therefore, we ask:

RQ1: How has the number of articles on local news developed over time?

RQ2: How has geographical diversity in local news developed over time?

RQ3: Are there differences in geographical diversity between local hard and soft news coverage?

3. The Swiss Case

In addition to being segmented into four language regions, Switzerland is a country with strong autonomy in its sub-national units, such as cantons (states) and municipalities. Historically, as in Scandinavian countries and other countries with a democratic-corporatist media system model (Hallin & Mancini, 2004). In the process, the boundaries of local and regional markets and audience groups shifted, along with the content offered by the news outlets. Today, outlets exist on several levels. At the national level, which tends to be the same as the language region

level, the public service broadcaster SRG SSR is the dominant player, together with the tabloids and cost-free papers (e.g., *Blick* and *20 Minuten* in German-speaking Switzerland), all of which provide a comprehensive diet of international and national (and some regional) news. At the local level, (hyper)local print and online news outlets focus only on single (or very few) communities and do not include national or international news; in many cases, even their local news output is limited (e.g., only weekly publication), thereby reducing their importance. More important are the news media at the more regional level, namely the commercial radio and TV stations that have a license to broadcast in a specific region, and, above all, daily regional newspapers, as they focus not only on one community but also a slightly larger region (e.g., a metropolitan area or one or two cantons; Künzler, 2013). These regional newspapers, such as *Aargauer Zeitung*, *Luzerner Zeitung*, *St. Galler Tagblatt*, or *Tages-Anzeiger*, offer a mix of international, national, and local news and represent a very important source of news in general, and of local news in particular, for a large part of the population, both in their printed and online editions (Newman et al., 2021).

These regional media in Switzerland usually dedicate most of their local coverage to one canton and its municipalities. This focus is congruent with the level of political decision-making at the level of cantons, which have comparably large autonomy in federally organized Switzerland. Following the economic crisis of journalism in Switzerland, many regional outlets were taken over by the two largest private media companies, TX Group and CH Media. These two companies emerged as the two leading players in the regional news business in German-speaking Switzerland's media market (Vogler et al., 2020). They produce regional media that often share international and national news but have separate regional and local coverage. At TX Group, the regional newspapers from three of Switzerland's five largest cities now produce the same international and national news content: *Bund* (Bern), *Berner Zeitung* (Bern), *Basler Zeitung* (Basel), and *Tages-Anzeiger* (Zurich), and there are even more brands from smaller cities and regions (e.g., *Thuner Tagblatt*) with shared (inter)national content. The same goes for CH Media in cities and regions: *Aargauer Zeitung* (Aarau), *Luzerner Zeitung* (Lucerne), *Tagblatt* (St. Gallen), etc.

Consolidation and concentration thus imply an ambivalent (or dual) business strategy in terms of target audiences. On the one hand, these two media companies "go national" by centralizing domestic news production among individual outlets, possibly in the hope of cutting costs in news production and increasing economies of scale. On the other hand, aware of the value of local audiences, both companies still run their outlets under individual local brands that have local editorial offices and only cooperate for national and international news. This strategy was an important argument used to justify the takeover to their readers and policymakers

concerned about the negative effects of the merger. Instead of shutting down the newspapers, this model allowed continued coverage of regions that would, by definition, become news deserts if the outlet disappeared. Thus, local or regional outlets, such as *Aargauer Zeitung* or *Tages-Anzeiger*, increase their importance on the national stage through centralized news production, while they also remain the dominant players in their respective regions.

This centralization strategy is apparent even though TX Group and CH Media operate with slightly different business models. TX Group is a relatively large media company traded on the stock market, with a turnover of more than USD 900 million. It has diversified its business activities, both within and outside journalism. TX Group produces not only regional and local brands but also more national brands, above all the cost-free, advertising-based paper *20 Minuten*, Switzerland's dominant print and online brand. It also owns important digital marketplaces, such as job and car engines, and a media advertising and marketing company. Compared to TX Group, CH Media is a smaller media company with a turnover of more than USD 400 million, and is focused more on journalism as a core business. CH Media is made up of two media companies, AZ Medien and the regional part of NZZ Mediengruppe, which, in 2018, joined forces to produce regional brands. Unlike TX Group, CH Media does not engage in digital marketplace activities but is instead rather heavily involved in the business of regional radio and TV stations, for which it also receives some public funding.

4. Methods

4.1. Data Collection

We combined a large manually annotated dataset of news articles with automated geoparsing to investigate the development of geographical diversity in the coverage of Swiss news media from 2015 to 2021. The overall dataset consists of the full coverage of six printed regional newspapers on five randomly sampled days per year (n = 15,254). The outlets are based in six different cantons and belong to two media companies. Three outlets belong to the TX Group and three to CH Media.

They were all integrated into centralized editorial offices during the investigation period (for an overview of the sample, see Table 1). We rely on printed regional newspapers, as they are still consumed equally as often (or in some cases, even more often) as their online counterparts (Newman et al., 2021).

4.2. Manual Content Analysis

The articles were drawn from a larger project on media quality (Forschungszentrum Öffentlichkeit und Gesellschaft, 2022). We selected two variables from the main project for our analysis, which were manually annotated by trained coders. They first analyzed the article's main topic and distinguished between hard news (politics, economy, science, and culture) and soft news (sports and human interest stories). Second, the coders decided whether the article's focus was local or regional (considered here as one level), national, or international. Intercoder reliability was tested using 525 unique articles, which three coders manually coded. Krippendorff's Alpha for the topic variable (0.90) and the geographical focus (0.85) were very satisfactory. For this study, we only analyzed local news coverage (n = 5,173). This manual content analysis allowed us to determine the volume and share of local news.

4.3. Geographic Data

We gathered a list of place names in Switzerland and around the world for use in spatial analysis. For domestic place names, we used the Swiss Federal Office of Topography's dataset SwissBoundaries3D. This was divided into 26 canton-level, 134 district-level, and 2,174 municipality-level administrative units. This dataset was manually edited to include alternate spellings not listed in official sources.

While this analysis focused on Swiss locations, it was still necessary to include international locations to facilitate disambiguation between locations with the same name in multiple countries, such as the Swiss and German cities of Freiburg. We also included data from the Natural Earth Data open-source dataset, with 231 countries and independent territories, 4,589 provinces, and 7,342 populated places such as

Table 1. Newspapers examined with article counts.

Outlet	Owner	Canton	Circulation	Articles in a total sample	Articles on regional topics
Aargauer Zeitung	CH Media	Aargau	56,202	2,736	1,172
Luzerner Zeitung	CH Media	Luzern	97,151	2,224	788
St. Galler Tagblatt	CH Media	St. Gallen	95,496	2,731	1,148
Basler Zeitung	TX Group	Basel	36,644	2,637	742
Berner Zeitung	TX Group	Bern	72,674	2,347	793
Tages-Anzeiger	TX Group	Zurich	106,382	2,579	530

Note: Only articles on regional topics were examined.

cities. Natural Earth Data gathers place names in different languages from Wikipedia metadata, and we used both English and German place names. In total, this resulted in 13,012 unique place names representing 14,496 locations.

4.4. Geoparsing

To analyze the geographical diversity in Swiss news outlets, we extracted every mention of place names in each text and associated them with real-world locations through a process known as geoparsing. This allowed us to determine the relative number of times a place is mentioned in the news and to detect any blind spots in the coverage. Ultimately, then, we assume that the simple mentioning of geographical places tells us something about geographical diversity. We are aware that journalists and media users might also construct spaces and boundaries more subjectively and not necessarily with concrete place names (e.g., "in my local community"; cf. Weber & Mathews, 2022). Still, especially given the normative demands for local public spheres according to political institutions, we would claim that mentioning concrete place names, in the long run, is necessary to denote these boundaries.

This form of automated content analysis is commonly done in one of two ways: a gazetteer-based approach, in which words in a text are compared to a pre-gathered list of place names, or a natural entity recognition (NER) approach, which uses machine learning models trained on cues in the text to determine whether a word is likely to be a place. Geoparsing techniques are very well-developed in English, to the extent that researchers have even advocated machine translating documents to English and then geoparsing the result (Chen et al., 2019). As we focus on very granular Swiss locations, developing a localized approach is more appropriate.

The process can be divided into two sub-tasks: toponym recognition and toponym resolution (Pouliquen et al., 2006). Toponym recognition involves deciding which phrases in a text relate to a geographic entity (e.g., whether Champagne refers to the region in France or the sparkling wine). The second step, toponym resolution, involves deciding which geographic location a given phrase refers to (e.g., Paris, France or Paris, Texas). We handle these two tasks separately, using a pre-trained NER model, a gazetteer for toponym recognition, and a weighted approach for toponym resolution.

For each of the texts, we first combined the title and body of the text into one block and searched for each of the place names in the texts, resulting in a list of potential place names. To filter out false positives, the pre-trained NER pipeline in the Stanza NLP package (Qi et al., 2020) was used to identify place names within the text. This was then matched up with the gazetteer list. Along with Stanza, we also tested SpaCy's NER model (Honnibal & Montani, 2017), and a simple gazetteer-based approach, finding the Stanza model to be most accurate for this spe-

cific task. This general method is not novel and has been used, for example, as a baseline for the EUPEG geoparsing testing framework (Hu, 2018). The procedure gave us a list of place names, but further work was needed to correlate them with exact geographic locations. Our data sources included data on the population and administrative level of a location, which we used as a basis for a scoring mechanism for choosing the correct location. In addition, if a place was mentioned within the context of a larger place, this was also given a higher score. We allowed multiple place names per article to be extracted if they were in the gazetteer, were identified as places by the NER model, and scored above the threshold. Many places in Switzerland use the same name for different administrative levels. For example, Luzern could be mentioned in texts without indicating whether it refers to the canton or the city contained within. When it is unclear whether the larger or smaller administrative unit is meant, and no contextual clues are evident, then the geoparser defaults to the more granular one.

4.5. Data Output

The resulting dataset contained 8,267 place names, with all but 11 in Switzerland. This was expected, as we had already selected local news for this study. Of the Swiss news articles, 6,777 of the place names found were in our cantons of interest, and 2,323 were in other cantons (see Figure 1). For this study, the closely linked cantons of Basel Stadt and Basel Landschaft were considered to represent one unit (e.g., the two cantons together have only one seat in the Council of States). For each of the publications examined, we recorded all place names, regardless of the canton. As expected, each regional publication focused most heavily on its home canton.

5. Results

First, we looked at the space dedicated to local coverage in the analyzed news outlets, finding that the number of local news stories an outlet publishes per day declined over time (see Table 2). In 2016, the investigated outlets published 37 news articles on local matters on average per day, but in 2021 only 20 such stories were released per day. However, the relative importance of local events within the newspapers remained the same. In 2016, local news made up a share of 35.4%. In 2021, the share of local news was almost the same (35.8%). Still, from a diversity perspective, in 2021 less space was afforded for local news in absolute terms; thus, competition was higher among places for coverage.

RQ2 focuses on geographical diversity and its temporal development. We looked at the number of place names per canton over time but only include places in the cantons related to the analyzed outlets ($n = 6,777$ place names). We did not count multiple mentions of the same place in an article but relied on unique men-
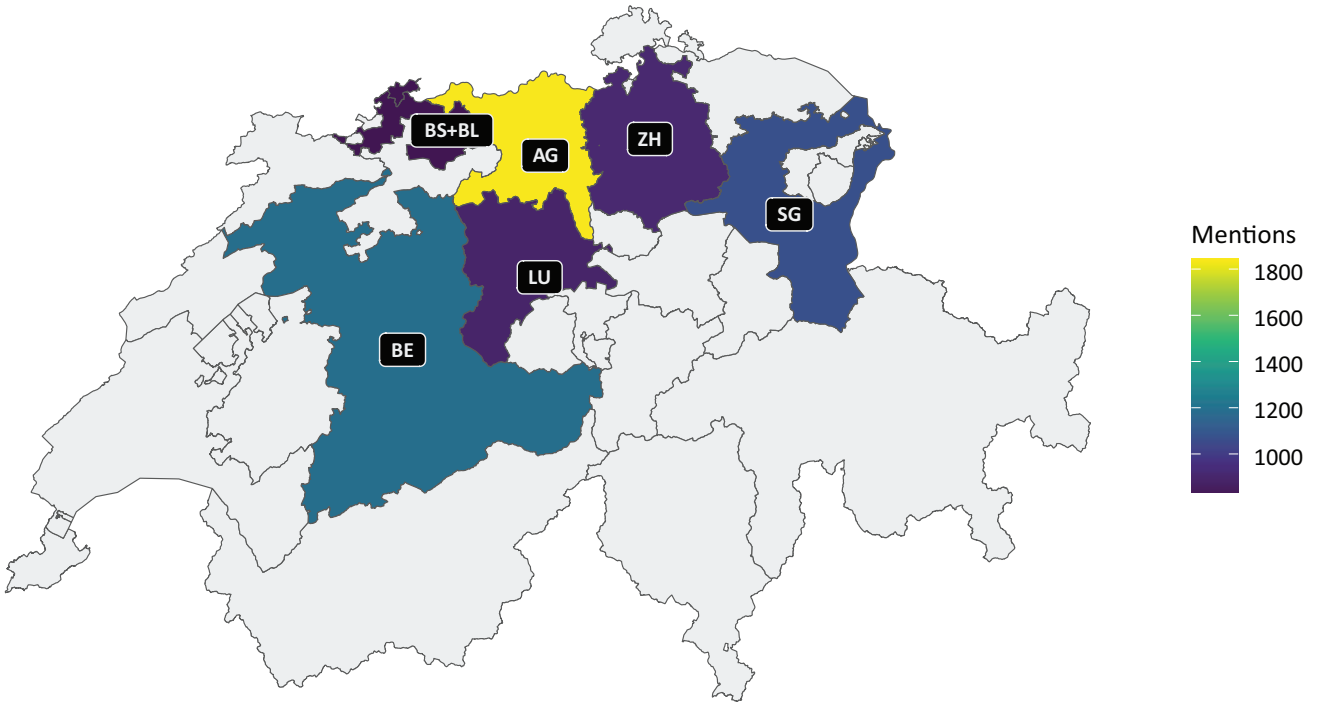
Figure 1. Number of place names in local coverage per canton. Notes: Only cantons of interest were included in this diagram; the acronyms mean AG = Aargau, BE = Bern, BS+BL = Basel, LU = Luzern, SG = St. Gallen, and ZH = Zürich.

tions per article. The density of place names in the local news declined over time (see Figure 2 and Table 3). However, we can observe some differences between the cantons. The canton of Aargau received the most mentions, and the number of mentions remained stable over time. We observed a general decline in place mentions in the other five cantons, especially St. Gallen and Zurich.

Similar to the number of articles, the number of mentions of places also declined over time (see Table 4). In 2016, we identified 1,312 place names in the news articles with our geoparser, and only 856 in 2021. At the same time, the place names per article increased from 1.18 in 2016 to 1.44 in 2021. Thus, we found a twofold reduction in diversity. First, the number of place names decreased. Second, multiple places tended to get covered in the same article. In addition, we captured a growing number of places that did not receive any mentions. As we used a random sample of articles, this does not mean that these places did not receive any mentions throughout the year. However, when we used 2016 as the benchmark, we observed that the number

of places without coverage increased from 487 to 645 in 2021. Finally, we looked at the distribution of the place names mentioned in the news coverage. For this assessment, we used the Shannon Diversity Index in its standardized version (evenness). This procedure allowed us to compare cases with different numbers of place names (i.e., large cantons with many places and small cantons with fewer places). The more evenly the places are mentioned in the analyzed outlets, the higher the Shannon Index. For this diversity assessment, we calculated the evenness for every outlet individually and only for place names from the canton in which the outlet was based. The average evenness remained fairly stable over time. In conclusion, we observed fewer place names in coverage, more place names per article, and more places without coverage, but only slight changes in the distribution of place names.

RQ3 asked about differences in geographical diversity between hard and soft news coverage. From a democratic perspective, hard news about politics, the economy, and culture is of higher relevance than soft news

Table 2. Amount and share of local news for all newspapers by year.

Year	The average number of articles on local news	Share of articles on local news
2016	37	35.4%
2017	32	33.3%
2018	28	31.8%
2019	29	32%
2020	26	36.1%
2021	20	35.8%

2016	2017	2018

2019	2020	2021

Mentions
- 300
- 250
- 200
- 150
- 100
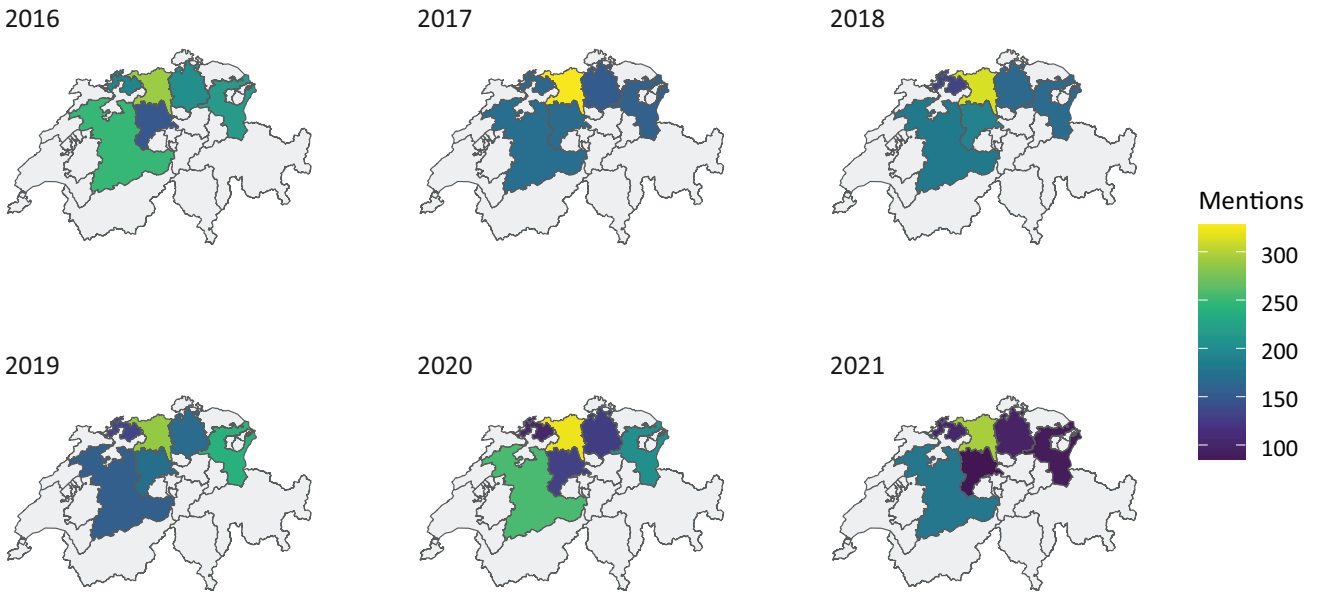
Figure 2. Number of place names per canton over time. Note: Lighter colors indicate high density, and dark colors are low density.

in the domains of sport or human interest. Given the frequent possibilities for political participation on the municipal and cantonal levels in Switzerland, a politically well-informed citizenry in the local realm is especially important. Therefore, we calculated indicators for the distribution of place names for articles in hard news and soft news coverage separately, using the manually coded topic variable. We observed a decline in place names, increasing place names per article, and more places without coverage for both hard news and soft news. There was also a pronounced decline in diversity in local soft news in 2021 (see Table 5). Apart from this, the evenness score was relatively stable for hard and soft

news. Besides the temporal development, which was similar to the overall results, we also saw an interesting difference between the two areas. In hard news, geographical places were mentioned more often than in soft news, leading to more mentions per article.

6. Discussion and Conclusion

In this article, we analyzed the geographical diversity in local news in Switzerland to investigate news deserts— or processes of news desertification—on the content level. Even though our analysis shows that Switzerland is far from being a news desert, we find early signs of

Table 3. Mentions of place names per canton for all newspapers by year.

Year	Aargau	Basel	Bern	Luzern	St. Gallen	Zürich
2016	292	198	250	150	217	205
2017	328	164	171	168	159	155
2018	315	132	184	193	168	165
2019	290	133	157	173	240	168
2020	323	102	257	131	205	128
2021	297	104	181	85	90	99
Total	1,845	833	1,200	900	1,079	920

Table 4. Coverage of places for all newspapers by year.

Year	Place names	Place names per article	Places without coverage	Diversity (evenness)
2016	1,312	1.18	487	0.64
2017	1,145	1.19	552	0.62
2018	1,157	1.37	478	0.63
2019	1,161	1.32	556	0.58
2020	1,146	1.48	584	0.62
2021	856	1.44	645	0.59

Table 5. Coverage of places per year for hard news vs. soft news for all newspapers by year.

Year	Place names		Place names per article		Places without coverage		Diversity (evenness)	
	Hard news	Soft news	Hard news	Soft news	Hard news	Soft news	Hard news	Soft news
2016	785	527	1.28	1.05	273	273	0.63	0.63
2017	674	471	1.28	1.09	310	276	0.57	0.66
2018	541	616	1.33	1.40	306	253	0.58	0.65
2019	573	588	1.28	1.35	355	267	0.52	0.61
2020	695	451	1.57	1.36	291	291	0.59	0.62
2021	571	285	1.48	1.36	294	347	0.59	0.47

news desertification by focusing on the output and performance level (Napoli et al., 2017) of regional newspapers, which are still the main entry points for citizens to receive their wholesale diet of international, national, and local news. At the output level, we observed a declining number of local news articles published by the outlets analyzed. This development reflects the overarching crisis of news journalism, with declining resources and a diminishing output. Second, at the performance level, we see a declining number of unique place names in the news articles and more mentions per article. The output and performance levels are strongly interrelated when it comes to diversity. A declining amount of space dedicated to local matters leads to higher competition among local news stories to make the news. Political news, which is essential for some communities, might not have enough news value for a large audience; therefore, it might be neglected, especially when events take place in peripheral regions. The increased media concentration also gives editorial offices high power over the local news agenda. From this perspective, the stable development of the diversity of place names in the coverage is a positive sign. Even though the number of place names declined, their distribution in coverage remained diverse overall and for coverage of hard news as well as soft news.

By taking a procedural perspective and analyzing news deserts at the content level, the article links the increasing body of literature on media content concentration (Hendrickx & Ranaivoson, 2021; Vogler et al., 2020) to the concept of news deserts. In times when the concentration of media ownership is on the rise, and few news organizations operate large news networks by providing content for many outlets through centralized editorial offices, this perspective will gain importance. Automated geoparsing allows us to scale the analysis of one of the main qualitative dimensions of news deserts, a prominently articulated research desideratum (Napoli et al., 2017). The analysis of geographical diversity as a means of grasping news deserts could also be applied to the content of digital-born start-ups or social media content, thereby remedying one of the deficits of current news desert research (Toff & Mathews, 2021).

The longitudinal analysis of six regional outlets that were incorporated into two supra-regional news networks with centralized editorial offices during the period

of investigation offers an insightful perspective. Our results mirror the strategy of the media companies that own the analyzed outlets. When they rolled out the centralized editorial offices, the local offices remained independent. Thus, the central office provided international and national news, whereas regionally based journalists provided the local news in independent offices. This model, which differs from fully centralized outlets that have individual brands but share all their content, can maintain geographical diversity in local news coverage to a certain degree. However, this requires dedicated publishers who are willing and able to invest resources in local journalism. The ongoing crisis of journalism instead points to further budget cuts, declining resources, and centralization. In Switzerland, TX Group recently announced that it would also establish centralized editorial offices for local news, and CH Media closed some of its editorial offices in peripheral regions. Therefore, the geographical diversity in Swiss regional news media will supposedly diminish in the near future.

This study has some limitations. The focus on content analysis serves our exploratory purposes with open research questions. A larger sample of news media with more structural variation would allow for a more explanatory approach, which would also include testing the effect of media companies' business models. In this light, interviews with media managers or journalists would be a welcome addition to explain why and how structural conditions affect news output. Of course, the findings are specific to the Swiss case and are not generalizable. We also looked at a relatively small media sample that included only the most important outlets from the regions investigated. Especially in urban areas, such as Zurich or Basel, other legacy outlets from the print and broadcasting sector exist that produce local news. Our study also does not account for digital-born start-ups (Toff & Mathews, 2021). Furthermore, our case selection was guided by the media outlets and not by the regions. The six outlets covering six different cantons were integrated into centralized editorial offices; thus, they make a compelling case for investigating whether centralization in journalism contributes to news desertification. For a comprehensive diagnosis of the media market in Switzerland, we would have to consider more cantons, such as rural regions like the cantons of Grisons or Valais. We should also bear in mind that a healthy local

public sphere does not only (or does not necessarily) include legacy news media, but also includes digital community platforms, where citizens exchange news (Usher, 2023) and public infrastructures, such as public libraries (Fischer et al., 2021). Thus, any diagnosis of news deserts from our dataset must be drawn carefully, as studying the volume and quality of local news offered by media companies is the first, but certainly not the last, step in a holistic analysis of local public spheres in modern democracies.

In terms of measuring geographical diversity in local news, we focused on mere mentions of municipalities and cantons but did not further investigate the characteristics of these mentions. In light of research showing that journalists working in centralized editorial offices tend to miss out on peculiarities of peripheral regions (Gasher, 2007), distinguishing articles with substantial coverage of a place from articles where the name is merely used to indicate the location where events take place would be relevant. The geoparsing method used does not track the relative importance of the places mentioned; places that are the focus of a news article and those mentioned in passing will be given equal standing with this method. As we found more places per article after the integration of newspapers into centralized editorial offices, this raises opportunities for further research into the relative importance of each place mentioned. Furthermore, even though mentioning a location belongs to practices of the journalistic profession, the place names are only a proxy for diversity in local news. Geographical diversity is not limited to mentioning place names but includes the diversity of local topics, voices, and actors. In-depth analyses of the content would be a promising line of research for further investigation of news deserts at the content level.

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Conflict of Interests

The authors declare no conflict of interests.

References

Abernathy, P. (2020). *News deserts and ghost newspapers. Will local news survive?* University of North Carolina at Chapel Hill. https://www.usnews deserts.com/reports/news-deserts-and-ghost-newspapers-will-local-news-survive

Andersen, K., Bjarnøe, C., Albæk, E., & De Vreese, C. H. (2016). How news type matters: Indirect effects of media use on political participation through knowledge and efficacy. *Journal of Media Psychology*, *28*(3), 111–122. https://doi.org/10.1027/1864-1105/a000201

Chen, X., Gelernter, J., Zhang, H., & Liu, J. (2019). Multilingual geoparsing based on machine translation. *Future Generation Computer Systems*, *96*, 667–677.

Darr, J. P., Hitt, M. P., & Dunaway, J. L. (2018). Newspaper closures polarize voting behavior. *Journal of Communication*, *68*(6), 1007–1028. https://doi.org/10.1093/joc/jqy051

Dogruel, L., Berghofer, S., Vonbun-Feldbauer, R., & Beck, K. (2019). Die Publizistische Einheit als Auslaufmodell: Zur abnehmenden Validität eines press-estatistischen Standardmaßes [The journalistic unit as a discontinued model: On the declining validity of a standard statistical measure for the press]. *Publizistik*, *64*(3), 329–344. https://doi.org/10.1007/s11616-019-00505-2

Ferrier, M., Sinha, G., & Outrich, M. (2016). Media deserts: Monitoring the changing media ecosystem. In L. A. Friedland (Ed.), *The communication crisis in America, and how to fix it* (pp. 215–232). Palgrave Macmillan.

Ferrucci, P., & Alaimo, K. I. (2020). Escaping the news desert: Nonprofit news and open-system journalism organizations. *Journalism*, *21*(4), 489–506. https://doi.org/10.1177/1464884919886437

Finneman, T., Heckman, M., & Walck, P. E. (2022). Reimagining journalistic roles: How student journalists are taking on the US news desert crisis. *Journalism Studies*, *23*(3), 338–355. https://doi.org/10.1080/1461670X.2021.2023323

Fischer, R., Keinert, A., Jarren, O., & Klinger, U. (2021). What constitutes a local public sphere? Building a monitoring framework for comparative analysis. *Media and Communication*, *9*(3), 85–96. https://doi.org/10.17645/mac.v9i3.3984

Forschungszentrum Öffentlichkeit und Gesellschaft. (2022). *Jahrbuch Qualität der Medien 2022* [Yearbook quality of the media 2022]. Schwabe.

Gasher, M. (2007). The view from here: A news-flow study of the online editions of Canada's national newspapers. *Journalism Studies*, *8*(2), 299–319. https://doi.org/10.1080/14616700601148895

Gulyas, A., & Baines, D. (2020). Introduction: Demarcating the field of local media and journalism. In A. Gulyas & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 1–21). Routledge.

Hallin, D. C., & Mancini, P. (2004). *Comparing media systems: Three models of media and politics*. Cambridge University Press.

Hayes, D., & Lawless, J. L. (2018). The decline of local news and its effects: New evidence from longitudinal data. *The Journal of Politics*, *80*(1), 332–336. https://doi.org/10.1086/694105

Hendrickx, J., Ballon, P., & Ranaivoson, H. (2022). Dissecting news diversity: An integrated conceptual framework. *Journalism*, *23*(8), 1751–1769. https://doi.org/10.1177/1464884920966881

Hendrickx, J., & Ranaivoson, H. (2021). Why and how higher media concentration equals lower news diversity—The Mediahuis case. *Journalism*, *22*(11), 2800–2815. https://doi.org/10.1177/146488 4919894138

Hindman, M. (2018). *The internet trap: How the digital economy builds monopolies and undermines democracy*. Princeton University Press.

Honnibal, M., & Montani, I. (2017). *spaCy 2: Natural language understanding with Bloom embeddings, convolutional neural networks and incremental parsing* [Software].

Hu, Y. (2018). EUPEG: Towards an extensible and unified platform for evaluating geoparsers. In *Proceedings of the 12th Workshop on Geographic Information Retrieval* (pp. 1–2). ACM. https://doi.org/10.1145/3281354.3281357

Humprecht, E., & Esser, F. (2018). Diversity in online news: On the importance of ownership types and media system types. *Journalism Studies*, *19*(12), 1825–1847. https://doi.org/10.1080/1461670X.2017.1308229

Jenkins, J., & Nielsen, R. K. (2020). Preservation and evolution: Local newspapers as ambidextrous organizations. *Journalism*, *4*(21), 472–488. https://doi.org/10.1177/1464884919886421

Joris, G., De Grove, F., Van Damme, K., & De Marez, L. (2020). News diversity reconsidered: A systematic literature review unraveling the diversity in conceptualizations. *Journalism Studies*, *21*(13), 1893–1912. https://doi.org/10.1080/1461670X.2020.1797527

Kübler, D., & Goodman, C. (2019). Newspaper markets and municipal politics: How audience and congruence increase turnout in local elections. *Journal of Elections, Public Opinion and Parties*, *29*(1), 1–20. https://doi.org/10.1080/17457289.2018.1442344

Künzler, M. (2013). *Mediensystem Schweiz* [Media system Switzerland]. UVK.

Loecherbach, F., Moeller, J., Trilling, D., & van Atteveldt, W. (2020). The unified framework of media diversity: A systematic literature review. *Digital Journalism*, *8*(5), 605–642. https://doi.org/10.1080/21670811.2020.1764374

Magasic, M., & Hess, K. (2021). Mining a news desert: The impact of a local newspaper's closure on political participation and engagement in the rural Australian town of Lightning Ridge. *Australian Journalism Review*, *43*(1), 99–114. https://doi.org/10.1386/ajr_00059_7

Magin, M., Stark, B., Jandura, O., Udris, L., Riedl, A., Klein, M., Eisenegger, M., Kösters, R., & Hofstetter Furrer, B. (2023). Seeing the whole picture. Towards a multi-perspective approach to news content diversity based on liberal and deliberative models of democracy. *Journalism Studies*, *24*(6), 669–696. https://doi.org/10.1080/1461670X.2023.2178248

Masini, A., Van Aelst, P., Zerback, T., Reinemann, C., Mancini, P., Mazzoni, M., Damiani, M., & Coen, S. (2018). Measuring and explaining the diversity of voices and viewpoints in the news: A comparative study on the determinants of content diversity of immigration news. *Journalism Studies*, *19*(15), 2324–2343. https://doi.org/10.1080/1461670X.2017.1343650

Mathews, N. (2022). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265. https://doi.org/10.1177/1464884920957885

Mathews, N., & Ali, C. (2022). Desert work: Life and labor in a news and broadband desert. *Mass Communication and Society*. Advance online publication. https://doi.org/10.1080/15205436.2022.2093749

McQuail, D. (1992). *Media performance. Mass communication and the public interest*. SAGE.

Napoli, P. M., Stonbely, S., McCollough, K., & Renninger, B. (2017). Local journalism and the information needs of local communities. *Journalism Practice*, *11*(4), 373–395. https://doi.org/10.1080/17512786.2016.1146625

Napoli, P. M., Weber, M., McCollough, K., & Wang, Q. (2018). *Assessing local journalism: News deserts, journalism divides, and the determinants of the robustness of local news*. Duke University. https://media.kjzz.org/s3fs-public/Assessing-Local-Journalism_100-Communities.pdf

Newman, N., Fletcher, R., Schulz, A., Andı, S., Robertson, C. T., & Nielsen, R. K. (2021). *Reuters Institute digital news report 2021*. Reuters Institute. https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2021

Nielsen, R. K. (2015). Introduction: The uncertain future of local journalism. In R. K. Nielsen (Ed.), *Local journalism: The decline of newspapers and the rise of digital media* (pp. 1–25). I.B. Tauris.

Ohme, J. (2020). Mobile but not mobilized? Differential gains from mobile news consumption for citizens' political knowledge and campaign participation. *Digital Journalism*, *8*(1), 103–125. https://doi.org/10.1080/21670811.2019.1697625

Pouliquen, B., Kimler, M., Steinberger, R., Ignat, C., Oellinger, T., Blackler, K., Fuart, F., Zaghouani, W., Widiger, A., Forslund, A. C., & Best, C. (2006). *Geocoding multilingual texts: Recognition, disambiguation and visualisation*. arXiv. https://doi.org/10.48550/arXiv.cs/0609065

Qi, P., Zhang, Y., Bolton, J., & Manning, C. (2020). Stanza: A Python natural language processing toolkit for many human languages. In *Association for Computational Linguistics (ACL) System Demonstrations* (pp. 101–108). Association for Computational Linguistics. https://aclanthology.org/2020.acl-demos.14.pdf

Radcliffe, D., & Ali, C. (2017). *Local news in a digital world: Small-market newspapers in the digital age*. Tow Center for Digital Journalism. https://doi.org/10.7916/D8WS95VQ

Reinemann, C., Stanyer, J., Scherr, S., & Legnante, G. (2012). Hard and soft news: A review of concepts,

operationalizations and key findings. *Journalism*, *13*(2), 221–239. https://doi.org/10.1177/14648849 11427803

Sjøvaag, H. (2014). Homogenisation or differentiation? The effects of consolidation in the regional newspaper market. *Journalism Studies*, *15*(5), 511–521. https://doi.org/10.1080/1461670X.2014.885275

Strömbäck, J., Falasca, K., & Kruikemeier, S. (2018). The mix of media use matters: Investigating the effects of individual news repertoires on offline and online political participation. *Political Communication*, *35*(3), 413–432. https://doi.org/10.1080/10584609.2017.1385549

Toff, B., & Mathews, N. (2021). Is social media killing local news? An examination of engagement and ownership patterns in US Community news on Facebook. *Digital Journalism*. Advance online publication. https://doi.org/10.1080/21670811.2021.1977668

Umbricht, A., & Esser, F. (2016). The push to popularize politics. *Journalism Studies*, *17*(1), 100–121. https://doi.org/10.1080/1461670X.2014.963369

Usher, N. (2021). *News for the rich, white, and blue: How place and power distort American journalism*. Columbia University Press. https://www.jstor.org/stable/10.7312/ushe18466

Usher, N. (2023). The real problems with the problem of news deserts: Toward rooting place, precision, and positionality in scholarship on local news and democracy. *Political Communication*, *40*(2), 238–253. https://doi.org/10.1080/10584609.2023.2175399

van Erkel, P. F., & Van Aelst, P. (2021). Why don't we learn from social media? Studying effects of and mechanisms behind social media news use on general surveillance political knowledge. *Political Communication*, *38*(4), 407–425. https://doi.org/10.1080/10584609.2020.1784328

Vogler, D., & Udris, L. (2021). Transregional news media coverage in multilingual countries: The impact of market size, source, and media type in Switzerland. *Journalism Studies*, *22*(13), 1793–1813. https://doi.org/10.1080/1461670X.2021.1965909

Vogler, D., Udris, L., & Eisenegger, M. (2020). Measuring media content concentration at a large scale using automated text comparisons. *Journalism Studies*, *21*(11), 1459–1478. https://doi.org/10.1080/1461670X.2020.1761865

Weber, M. S., & Mathews, N. (2022). Explicating local: An audience-based framing of local community and local news. *Digital Journalism*. Advance online publication. https://doi.org/10.1080/21670811.2022.2142629

Wilke, J., Heimprecht, C., & Cohen, A. (2012). The geography of foreign news on television: A comparative study of 17 countries. *International Communication Gazette*, *74*(4), 301–322. https://doi.org/10.1177/1748048512439812

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Commentary

Co-Creating News Oases in Media Deserts

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Abstract
The Media Deserts Project is a research effort to map and model the changing media landscape in the United States. Media deserts are defined as geographies lacking fresh, daily news and information. Using circulation data of US print newspapers, emerging hyperlocal online news sites in digital networks, and broadband access data from the Federal Communication Commission, the Media Deserts Project maps these changes using geographic information systems down to the zip code level, making visible local communication systems and gaps. To develop community-centered news and information solutions, this research team used community-based research practices, where students engaged with residents, local business leaders, health, education, and other administrators to examine the communication needs of three specific communities in Southeast Ohio. We centered our efforts on building relationships with community members and designing localized media tools. We learned key insights that we believe may travel well into other projects using community-based engagement, participatory design, and co-creation practices.

Issue
This commentary is part of the issue "News Deserts: Places and Spaces Without News" edited by Agnes Gulyas (Canterbury Christ Church University), Joy Jenkins (University of Missouri), and Annika Bergström (University of Gothenburg).

1. Introduction

I have been some kind of way since *The New York Times* profiled a nearby neighbor in Athens County, Ohio. They called him "The Man Who Knew Too Little" because since November 8, 2016, he has managed to engage regulars at a local coffee shop we both frequent to continue the "news blockade." No news chit-chat with baristas. No news from TV. No news from a newspaper or social media (Dolnick, 2018).

Our lives could not be more different here in one small college town. Call me the "woman who knew too much." I teach journalism, social media, and online news at the local university. I am the founder of TrollBusters (www.troll-busters.com), an organization that fights online abuse of journalists. And I am the creator of the Media Seeds Project and the Media Deserts Project (www.mediadeserts.com).

As the demographics for the region show, Southeast Ohio residents represent some of the poorest residents in Ohio and in the country. These regions also lack broadband infrastructure and other challenges like access to health care. Hard hit by the opioid epidemic, lack of jobs, and rising health and housing costs, regional leaders struggle with multiple issues to keep their communities alive.

You could say I am jacked into news and information on a cellular level. I read daily reports on the opioid epidemic in Southeast Ohio and West Virginia. I monitor hashtags like #OnlineAbuse, #MAGA, and #BlackLivesMatter. And I am on a mission to hunt down people like my neighbor—unplugged and unengaged—and burst his bubble, because I think that his cultivated ignorance and its counterparts—willful sowing of confusion and mistrust—are destroying our communities.

2. Making Media Deserts Visible

As newspapers cut and slashed personnel or closed completely through the economic downturn in 2008, they

contracted their coverage on their perimeters and in their urban cores (Ferrier, 2014). Ownership of local radio stations consolidated in rural areas around right-leaning media organizations. Broadband access and last-mile challenges in rural geographies compounded the issue of connectivity. Shifts across the media industry left geographies lacking robust local media ecosystems across the US.

The Media Deserts Project is a research effort to map and model this changing media landscape. In 2008, I defined media deserts as geographies lacking fresh, daily news and information (Ferrier, 2014). Using circulation data of US print newspapers, emerging hyper-local, online news sites in digital networks, and broadband access data from the Federal Communication Commission, the Media Deserts Project maps these changes using geographic information systems down to the zip code level, making visible local communication systems and gaps. In 2011, North Carolina became my prototype, Media Deserts' beta test (LeGreco et al., 2012, 2015). My definition: A *media desert* is a community that is lacking fresh, daily, local news, and information (Ferrier, 2014).

In the Media Deserts methodology, we bring together data journalism, digital ethnography, and geographic information systems together into geospatial media analytics that examines the code, content, and conduit levels of the internet. Our methodology builds on framing first posited by Lessig (2002), who implores us to attend to the three levels of the Internet for analysis of its functions and affordances in building civic communications ecosystems.

Bringing geography into our analytics with digital spaces is critical to understanding and designing for the variables of politics and physical geographies that govern the lives of individuals in communities regardless of the geography in the US or around the globe. Said another way, our interventions cannot be absent of geographies and the lived experiences of the residents.

Creating civic communication spaces, where residents can exercise true democracy, requires robust analysis of the code, content, and conduit levels of digital spaces as well as the same application to the "physical world." Code, as Lessig (2002) describes it, is the law and other inscribed instruments that govern behavior. Content can be journalism, but also all of our other knowledge producers, such as scholars and researchers, students and artists and other cultural producers, narrative creations, and artistic creations. Conduits can be newspapers, billboards, radio, or other strategies.

The Media Deserts methodology brings together a mixed methodology of qualitative, ethnographic, and network analyses together to examine these three layers in digital and physical geographies. As I describe in *The Communication Crisis in America and How to Fix It* (Ferrier et al., 2016, p. 221):

> We use the term "media deserts" since it describes not just the content layer as Lawrence Lessig describes in his framework, but also the conduit and code layers (Lessig, 2002, p. 23). For example, if at the content layer we are describing "news deserts," the conduit layer would address issues through broadband or mobile devices and the code layer would address issues with Google algorithms for determining "news" to the effects on search engine results. The term "media deserts" is, therefore, multidimensional and allows us to begin to see the larger complexity of the ecosystems in which we operate.

The Media Deserts Research Atlas, launched in March 2018 (Figure 1), allows users to search by state, county, and zip code to find what media are operating on these multiple levels or what regulatory conditions might be affecting local access. Our goal is to help jumpstart local conversations about building media capacity and helping residents create local solutions (Ferrier et al., 2016, p. 221).
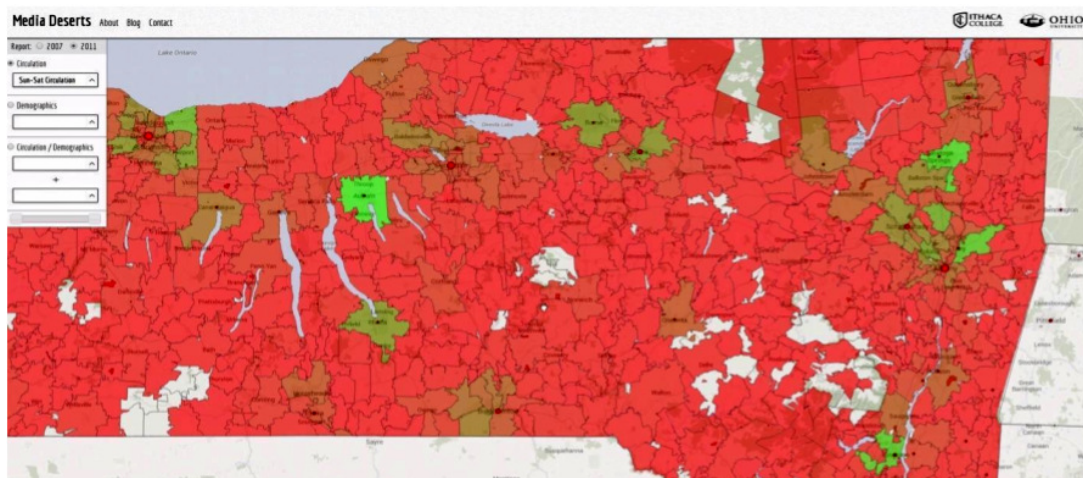

Figure 1. The Media Deserts Research Atlas. Notes: After users see the pinpoint data, they can click on a state and see the circulation change rendered by zip code; users can also compare the circulation on demographic factors.

The Media Deserts model looks at the code, content, and conduit layers of our communications ecosystem. Using Lessig's (2002) characterization of the layers of digital spaces, I examined the communication flows on these levels:

- Code: Using network analysis and social media monitoring tools, we examined access to and use of social tools.
- Content: Using content analyses and digital ethnographic methods, we analyze content distribution, sourcing, and representation.
- Conduit: Using circulation data from the Alliance for Audited Media to map daily newspapers across the US and broadband data, we examined access to Internet services and cellular access.

Since 2012, my approach has been to focus on bringing the whole system into view—governmental information, civic communication, and emerging media innovations on social media platforms—and helping to grow sustainable media ecosystems. Other journalists have tried to co-opt our systems model by mapping "news deserts." Abernathy in her work at the University of North Carolina in 2018, began mapping the presence of a local newspaper in geographies. Abernathy defines a news desert as the absence of a local newspaper (Abernathy, 2018).

In our Media Deserts models, the target of our work is building civic communications ecosystems. The Media Deserts Project makes visible information flows and gaps, helping to facilitate the processes of coordinating actions and resources across geographies. Through our civic communications systems analyses, from the visualizations to deeper ethnographic work, we are helping to make visible the complexities of information flows across geography and co-design interventions with community residents and stakeholders.

3. Sowing the Seeds of Civic Communications

In partnership with Journalism That Matters, I led the Media Seeds Project in Southeast Ohio in August 2017 to learn what it takes to turn deserts into fertile civic information oases. The project is informed by the civic communications framework developed in 2015 while I was board president of Journalism That Matters (Figure 2; Holman et al., 2017).

"To be a thriving, resilient ecosystem, communication needs to go beyond 'reporting' what is happening in the ecosystem to providing robust information and inclusive dialogue, fostering collaborative action that achieves community goals" (Holman et al., p. 1). Our operational principles were drawn from the work of Journalism That Matters and its creation of engagement principles for our Southeast Ohio work: (a) Nothing about us without us, (b) speak truth to empower, and (c) listening is our superpower.

In August 2017, students in my Strategic Social Media and Digital Innovation and Information classes used digital ethnography methods to create county-level media audits of more than 20 counties in Southeast Ohio that had been identified as media deserts:

Figure 2. The Journalism That Matters civic communications framework.

- How might we…foster and celebrate a greater sense of community or sense of place in the county?
- How might we…help communities affected by the health crisis to thrive?
- How might we…encourage dialogue and information sharing in our county? New pathways?

Using community-based research practices, students engaged local business, health, education, and other leaders to examine the communication needs of three specific communities. We centered our efforts on building relationships with community members and designing localized media tools. We learned key insights that we believe may travel well into other projects using community-based engagement, participatory design, and co-creation practices.

3.1. Consider Your Identity

To successfully enter a media desert, it is important to reflect on who you are and what relationship you have with the community. This means seriously considering what knowledge and experience you bring to the project, how others in the community are likely to see you, and how these things may limit the scope or pace of your work in the community.

3.2. Listen Deeply

In addition to engaging in self-reflection, it is essential to learn about the assets and needs of the community. Practicing this kind of listening helped us challenge our pre-existing assumptions about people and places that could have prevented us from developing good working relationships with community members.

3.3. Make the Invisible Visible

Discover the factors that affect the capacity of community members to connect to themselves and others (e.g., geography, history, technology, temporality, politics, demographics, culture, and power). We also developed six insights for engaging local communities:

1. Design for the realities of the region: Assess the constraints and assets of local infrastructure, geography, and culture. Innovations should be designed to fit these realities.
2. Attend to journalists' emotions and inner life: Working alone in a media desert can be isolating and emotionally difficult. Journalists need preparation and tools to manage emotional dynamics.
3. Recognize limits and public perceptions of existing local media: Local media are embedded in cultural and political institutions. Just because some local media exist, does not mean they necessarily serve the public and community needs.

4. Anticipate that innovations may disrupt existing power structures: Change is difficult and can be threatening to local leaders, who may resist or challenge your work.
5. Enlist a local champion, even if the journalist is from the community: Supportive local partners play an important role that is different from what journalists can do alone.
6. Treat every community as unique: Finally, it is important to design tools that are consistent with and build from what you learn during deep listening. Collaborating with local partners helps to keep the designs well-grounded in the assets and needs of that community.

We learned that our work must confront and interrogate local geographies, infrastructure, politics, and local cultures. Although we did not begin this project with the goal of disrupting local power systems, it became clear that media innovations were disruptive and seen as threats by both local politicians and owners of local media. We felt firsthand the importance of understanding and appreciating geography.

The lessons from this work have been carried across the world, to Ethiopia and media development work in underserved communities. We learned of the challenges of internet access, government shutdowns that limit access to key digital and financial services, rolling electrical blackouts that disrupt streaming connections and calls, and other physical challenges of keeping devices powered and ready to connect. Geography must play a role in our calculus of how and what communities need to thrive and how to build a safe space for civic communications.

This Media Deserts Project work is articulating new practices for journalists as "community weavers" and co-designers of new ways of reaching residents with community-based communication solutions. Ultimately, these new practices of listening, hosting, gathering, engagement, and creation will help journalists and other media workers to cultivate a communications ecosystem with their communities to support a thriving, local civic life.

References

Abernathy, P. M. (2018). *The expanding news desert*. Center for Innovation and Sustainability in Local Media.

Dolnick, S. (2018, March 10). The man who knew too little. *The New York Times*. https://www.nytimes.com/2018/03/10/style/the-man-who-knew-too-little.html.

Ferrier, M. (2014, February 28–March 1). *The media deserts project: Monitoring community news and information needs using geographic information system technologies* [Paper presentation]. AEJMC Midwinter Conference, Norman, OK, United States.

Ferrier, M., Sinha, G., & Outrich, M. (2016). Media

deserts: Monitoring the changing media ecosystem. In M. Lloyd & L. A. Friedland (Eds.), *The communication crisis in America, and how to fix it* (pp. 215–232). Palgrave Macmillan.

Holman, P., Susskind, Y., Ferrier, M., Fancher, M., & Silha, S. (2017). *Journalism for democracy and communities: A new framework*. Journalism That Matters. https://journalismthatmatters.org/wp-content/uploads/2017/06/Journalism-for-Democracy-and-Communities-6.20.17.pdf

LeGreco, M., Ferrier, M., & Leonard, D. (2015). Further down the virtual vines: Managing community-based work in virtual public spaces. In M. M. Merviö (Ed.), *Management and participation in the public sphere* (pp. 147–169). IGI Global.

LeGreco, M., Leonard, D., & Ferrier, M. (2012). Virtual vines: Using participatory methods to connect virtual work with community-based practice. In S. Long (Ed.), *Virtual work and human interaction research* (pp. 78–98). IGI Global.

Lessig, L. (2002). *The future of ideas: The fate of the commons in a connected world*. Vintage Books.

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Article

Rise of the Zombie Papers: Infecting Germany's Local and Regional Public Media Ecosystem

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Abstract
Germany's public broadcasters, along with local newspapers, have consistently ranked among the top three most trusted news sources in Germany. Yet growing criticism of mandatory fees and recent revelations about public broadcasters' misuse of funds have put into question the health of Germany's news and information infrastructure. In fact, a perfect storm appears to be brewing: precarious working conditions, exacerbated by cutbacks in the wake of Covid-19 and the emergence of so-called zombie papers. These papers, published without a local staff, reporters, or newsrooms, threaten to complicate audiences' perceptions of news credibility and trust. This study explores Germany's emerging news deserts by examining the rise of zombie newspapers in two states, one in the Western and one in the Eastern part of the country. Analyses of existing literature through the lens of institutional political economy and of interviews with key informants show that Germany, despite its strong federalized system, is following in US footsteps by creating journalist-free zones. A network of hard-to-follow corporate collaborations is endangering the foundations of post-war Germany's media system: pluralism and media diversity.

1. Introduction

The invitation was brief and to the point: Join us on Tuesday, January 31, 2023, at 11:55 a.m. for a vigil to commemorate the death of the *Westfälische Rundschau* (Kah, 2023). Dressed as zombies, dozens of journalists met at what union organizers called "the 11th hour," bearing gifts for the Funke Media Group, the publishing giant that had put many of them out of a job. These gifts included a birthday cake and the demand: "Funke, do better!" ("DJV-NRW fordert Funke," 2023). This day also marked the 10th anniversary of Germany's first so-called zombie paper, a paper stripped of journalists and resources but that continues to publish as if it were still alive and well. In 2013 when the newspaper was hollowed out, 120 journalists lost their jobs. This move, which brought hundreds of readers to the streets in protest ("Trauerzug für 'Zombie-Zeitung,'" 2013), turned out to be just a prelude

to the consolidation of Funke's media empire in the West German state of North Rhine-Westphalia. In reality, the groundwork for the creation of a patchwork of collaborations and takeovers between large and small media owners and holdings had been laid for some time. Yet while journalists were disappearing from newsrooms, in many local communities the papers continued to appear alongside competing publications, as if on autopilot. This landscape of the undead, exemplified by the much-publicized dismissal of the *Westfälische Rundschau*'s employees, has spread. What readers were seeing was a series of mergers and corporate media consolidations that presented a façade of journalistic presence that masked the creation of shadow news deserts.

This development, given Germany's post-war media landscape that was built on the concepts of pluralism, that is, political media diversity, and federalism (Hasselbach & Porter, 2002), seemed implausible a few

decades ago. The country's newspaper and broadcast system had been deliberately rebuilt under the auspices of the Allied powers beginning in 1945. The intended creation of a strong national and regional press (Frei, 1987; Hardt, 1988; Hasselbach & Porter, 2002) included a country-wide network of public media. This network continues to exist, albeit somewhat under duress (Huber, 2022). The population's news and information diet is considered comparatively stable and citizens remain relatively well-informed, with high civic engagement and trust in the broadcast system and newspapers (Esser & Brüggemann, 2010; Statista, 2022). And yet, the past two decades have seen a shift in the local newspaper landscape that has raised alarms. While the term "news deserts" is mostly reserved for commentary about the situation in the US, research about Germany's so-called "newspaper crisis" abounds (e.g., Brinkmann, 2018; Claassen, 2010; Nohr, 2011). Spiraling advertisement revenue, shrinking subscription numbers, and austerity measures have led to conditions comparable to those plaguing the US. Yet, I argue, there are significant differences between the two media markets and their respective ideologies that account for deviations in both institutional and individual responses to life in a news desert.

This exploratory study aims to provide an overview of the current newspaper and media landscape in Germany with a focus on zombie papers in two states, North Rhine-Westphalia (Nordrhein-Westfalen) in West and Thuringia (Thüringen) in East Germany. A survey of German news coverage about the state of the newspaper industry and interviews with key informants provide a framework, setting the agenda for future research. The following sections provide reviews of relevant literature in the US and international contexts. This is followed by an explication of zombie papers and the differences between them and US ghost papers. After discussing the consequences for journalists and readers, I close with suggestions for further research.

2. Literature

2.1. Political Economy of the Newspaper Crisis

The crisis in journalism is neither new (Breese, 2015, p. 45) nor a contested reality (Siles & Boczkowski, 2012, p. 1376). It is rooted as much in the long tail of convergence (Edge, 2022) as it is in the dwindling trust in traditional news outlets. Yet, while these are certainly to blame, the "problem of journalism" is systemic and multi-dimensional (McChesney, 2003). One dimension is the economic reality of media production. This arguably applies to both the US and Germany where, despite the presence of a strong public broadcast system, the newspaper industry is subject to market forces. The impact of market-driven news production on news selection (McManus, 1995) and on democracy has been the focus of scholarship for decades (McChesney, 2016;

McManus, 1994). Much of the work defining the political economy of communication (e.g., Bagdikian, 2004; Hardy, 2014;) posits as a key organizing principle the idea that knowledge- and media-producing systems, in particular mass media and entertainment, are influenced by the distribution and application of wealth and power (McChesney, 2003). Commercial news media organizations are capitalist ventures (Picard, 1989, p. 14). The profit motive guides the management, organization, and institutionalization of news production. The resulting creation of media monopolies is, arguably, not in the public interest (Meier & Trappel, 1999). Researchers tracking the state of news production across the globe support the "crisis narrative" (Hanitzsch et al., 2019, p. 162), finding consistently that journalists face increasingly precarious work conditions and declining levels of trust among news audiences in both the news media and in political institutions (Hanitzsch et al., 2019). Yet a recent survey found higher levels of trust in local news media among respondents (Knight Foundation, 2023, p. 57). Mistrust in national media aligns with findings indicating a softening of audience attitudes toward public funding of news organizations (Knight Foundation, 2022, p. 41). In fact, "public service news brands still score highest for trust with national and regional/local news media close behind" (Newman et al., 2022, p. 75). Research has supported the role of public service media as a counterbalance to media concentration, in defense of healthy democracies (Cushion, 2017). Neff and Pickard (2021), at the conclusion of their study of public media in 33 countries, call for further research investigating the role of public media in both the collapse and potential rescue of local journalism (Neff & Pickard, 2021, p. 21).

2.2. News Deserts

The evolution of the US media landscape into one dominated by corporate ownership has been well-documented (Claussen, 2018; Noam, 2016; Winseck, 2008) and blamed for news desertification, especially in, but not limited to, rural areas (Abernathy, 2016). Abernathy originally defined news deserts as communities without a local newspaper. By 2018 Abernathy had expanded the definition to include "communities where residents are facing significantly diminished access to the sort of important news and information that feeds grassroots democracy," since the amount and quality of news coverage provided in communities with one paper had dramatically declined (Abernathy, 2018, p. 16). Ferrier offers a broader view of the phenomenon, calling the gaps in coverage media deserts, i.e., "geographic regions that lack access to fresh local news and information to inform and educate the public"; she adds that the term "describes not only a larger framework for content such as news, information and conversation, but the delivery of such content" as well (Ferrier, 2014, p. 1). Despite calls for the repair of community and local journalism, Gulyás (2021) points out that research,

especially transnational research, lacks agreement about the meaning and scope of both terms: "Studies tend to focus more on societal aspects when researching local news and journalism, while arguably the spatial element is under-researched" (p. 16). Indeed, the focus has been on the creation of news deserts (e.g., Lee & Butler, 2019), on their impact on civic engagement (e.g., Hayes & Lawless, 2021), on community responses to newspaper closures (e.g., Magasic & Hess, 2021), and on the realities of living in a news desert (e.g., Mahone et al., 2019; Mathews, 2022). Studies about efforts and initiatives aiming to bring news to deserted communities (e.g., Conte, 2022; Royal & Napoli, 2022; Williams et al., 2015) are becoming more common as non-profit organizations aim to fill coverage holes (Ferrucci & Alaimo, 2020; Konieczna, 2018).

Gulyás and Baines' (2020) survey of international research about local media and journalism includes European countries with media systems similar to Germany's. In chapters about the French (Lardeau, 2020) and British (O'Hara, 2020) systems that are partially subsidized, for example, it becomes apparent that neither publicly funded broadcasters nor subsidized newspapers replace lost coverage. Yet, Gulyás and Baines (2020) posit:

> Where commercial local media is under stress, public support is increasingly being looked to as a means to maintain the public benefit—or merit—of a diverse and pluralistic local media ecology and as a facilitator of civic and democratic engagement. (p. 14)

I argue in the following that the foundation of Germany's post-war media landscape has in its DNA a culture committed to pluralism, that is, political and media diversity and information as a public good. It is this belief that supports the maintenance of zombie papers (Dogruel et al., 2019, p. 330), local newspapers that mimic life for the sake of preserving the façade of pluralism.

2.3. The German Context

When the Allied powers began issuing publishing licenses in 1945, paving the way for a public broadcasting system modeled after the British BBC, pluralism and federalism were baked into their visions of a free press in post-war Germany (Hasselbach & Porter, 2002). A regional network was established, with one independent broadcaster in each state and one national organization, the ARD (Arbeitsgemeinschaft der öffentlich-rechtlichen Rundfunkanstalten der Bundesrepublik Deutschland; or Working Group of Public Service Broadcasting of the Federal Republic of Germany). Representatives from various stakeholders, including political parties, unions, and churches, are meant to guarantee political independence, alongside state-specific regulatory bodies. A second, national-only public broadcaster, the ZDF (Zweites Deutsches Fernsehen [Second German Television]) was established in 1963. Both public broad-

casters are financed through a mandatory monthly fee per household, currently just over €18 per month, and advertising, thereby maintaining fiscal independence (Rundfunkbeitrag, 2022). In addition, post-war Germany saw rapid growth in the number of daily newspapers and weekly magazines in the West. By the 1970s media outlets, much like in the US, became more concentrated, and, by the 1980s, commercial interests began to change the publishing and broadcast landscape (Assmann, 2022; Kleinsteuber & Thomass, 2007). The public-service broadcasting system became what is known as a dual system, in which advertising-based commercial broadcasters and publicly-funded broadcasters coexist (Donsbach & Wilke, 2014; Pürer, 2015).

The press in the German Democratic Republic, on the other hand, was, prior to reunification, mostly organized and controlled by the state. With the fall of the Berlin Wall in 1989, East Germany was poised to reignite its news and publishing industry. Yet, West German publishers had, by the time negotiations over the terms of reunification were underway in 1990, already established a distribution network and, in effect, took over publishing and news production in the East (Grimberg, 2020; Tröger, 2019; Weischenberg et al., 2012). Hence, by the early 1990s, the media system in all of Germany would be considered a democratic corporatist model (Hallin & Mancini, 2004) with an expressed commitment to pluralism. Not only did the network of regional public broadcasters now cover the East, but "the big four" German news publishers flooded the market with newspapers and weeklies, imposing West German structures, norms, and practices into newsrooms in the East (Grimberg, 2020; Tröger, 2019).

Publishers' commercial zeal only intensified in the years following their expansion into this new market (Röper, 2004), to a large extent replicating in all of Germany the development in the US. Citizens' right to information, an agreement to guarantee basic services to allow for the free expression and formation of a plurality of opinions, are codified in Article 5 of the German constitution or Basic Law (Sachs, 2017). This explains the insistence of unions and regulators on not only maintaining a journalistic presence in all communities but encouraging multiple outlets to compete with one another. The existence of too many "one-paper-districts" across the country is considered a threat to media and opinion diversity and to deliberative democracy (Manigk, 2015; Sehl, 2013).

2.4. German News Deserts

I argue that the resulting two conceptualizations of journalism, as a civic right and public utility on the one hand, and as a commercial product on the other, shape definitions and perceptions of "news deserts." One issue that scholars have struggled with is that of units of measurement. For decades Walter Schütz recorded newspaper statistics in Germany (e.g., Schütz, 2012) His standard

measure, the *Publizistische Einheit* (independent journalistic unit), classically defined as an entity with a core newsroom, is no longer considered an adequate unit of measurement (Dogruel et al., 2019). As in the US, German publishers consolidated and created "news desks" where stories were produced, coordinated, and distributed across regions. The idea was to reduce complexity and streamline workflows among papers with common ownership (Beiler & Gerstner, 2019); by 2018, these were well established in the German newsroom landscape. This complicated the measurement of journalistic units. With few independent institutions keeping track, scholars, long dependent on Horst Röper's documentation of media concentration and corporatization (e.g., Röper, 1990, 2020), have turned to statistics commissioned by industry lobbyists such as the *BDZV* (*Bundesverband Digitalpublisher und Zeitungsverleger*), a national association of digital and newspaper publishers (Die Zeitungen, 2022; Keller & Eggert, 2022). Revealing the gap in competitive news production would certainly not be in industry lobbyists' interests. Yet, recent research measuring outlet diversity in Germany and Austria found that structural shifts associated with digital production and media consolidation have diluted the diversity of Germany's postwar media landscape (Vonbun-Feldbauer et al., 2020). Just two years earlier, researchers with the European Monitoring Project found the German system to be stable; nevertheless, they cautioned that media concentration was a looming threat concerning newspapers since regulation protecting media plurality covered only broadcasters (Steindl & Hanitzsch, 2018).

Despite the economic and practical advantages that media ownership concentration and the centralization of news production around regional "news desks" bring (Hofstetter & Schönhagen, 2015), concerns around the loss of media diversity (Beck et al., 2010; Kamber & Imhof, 2011) and horizontal concentration (Meier & Trappel, 1999) grew. While the latter has occurred in both the US and Germany, a more insidious version is taking root in Germany. By the time the first news reports about zombie papers appeared in North Rhine-Westphalia 10 years ago, the two local papers had not merged, although they were owned by the same corporation. Instead, two separate papers continued to exist. But one of them had died and lived on as a zombie, mimicking competition and diversity where there was none. While industry lobbyists remained silent, unions sounded the alarm, adopting "zombie" as a trope in their campaign against corporate layoffs. Readers, they warned, would no longer know who was producing the news they were reading and whom to trust ("DJV-NRW beklagt den fortwährenden," 2018). Herein lies an important distinction between US ghost papers and German zombie publications.

2.5. Ghosts and Zombies

A useful discursive device that was recently added to the concept of news deserts is the term "ghost papers," defined by Abernathy (2018) as newspapers that have become "shells of their former selves" (p. 24). Often, they are purchased by corporations and, with their staff and resources significantly reduced, produce less and less of their content. Such papers are often converted to advertising publications (Abernathy, 2020, p. 13). Their status, while not officially designated as "ghost papers," becomes quite obvious to readers as the previous multi-page paper shrinks or appears only once a week. Regional and national news may still be presented, but those stories are either produced elsewhere or, if they are local stories, are written by a lone staff member.

Germany's newspaper crisis has much in common with the crisis plaguing the US. *Nachrichtenwüsten* literally translates to news deserts and has become part of the vernacular. Yet, as argued above, with the belief that information is a public good and with media diversity as a goal anchored in Germany's media system, ghost papers in the US mold are rare. Conversely, when the term zombie paper is used in the North American context, it refers to what Abernathy (2018) calls ghost papers. In an article published by a progressive Canadian site describing developments in the US and Canada, the author calls it "journalism of the undead" (Climenhaga, 2012). Howells (2015, p. 296), citing Climenhaga, understands this to mean that journalists have left the community.

The popular press in the US uses the term when referring to newspapers designed to spread partisan news in the weeks before an election (Folkenflik, 2022). Speakman and Funk (2021) define zombies in the news context as websites that have been bought up and repurposed, keeping the same URL and posting content ranging from pornography to insurance ads. Others simply ceased to publish news and "while not technically dead, such 'zombie' websites serve no practical journalistic or community-building function." (Speakman & Funk, 2021, pp. 13–14). One could argue that the difference between zombies and ghosts is merely semantic. Yet while there is disagreement over nuances in the North American context, the German meaning of the term zombies is clear.

The first use of the term zombie in the German news context can be traced back to 2013 when unions in North Rhine-Westphalia used it to raise awareness of their campaign against austerity measures that would leave papers with empty newsrooms. Dogruel et al. (2019) describe zombie newspapers as "newspapers that are produced without any (own) editorial staff, but through copy-paste with content from other newspapers and sold under their own brand" (p. 330). That is, while US ghost papers represent hollowing out the distressed papers and thereby shrinking local coverage, publishers in Germany hold on to competing papers, turning them into zombies for the sake of demonstrating diversity. The zombie paper in a two or three-paper town is the paper that can no longer afford staff. To its readers, it is, in Climenhaga's (2012) words, undead. While journalists continue to produce some regional news, local editions are essentially outsourced. The pages are filled with local,

even hyperlocal news, but the bylines are from their direct, local competition. Where ghosts are shadows of the past, zombies walk the earth, pretending to be alive. Brand loyalty keeps readers buying the familiar newspaper, believing they have a choice. In reality, local journalists have been laid off. In the context of the German media culture, a lack of transparency about the nature of what readers consider independent journalistic units in a competitive news media market, these differences matter. This article explores how zombie papers operate, and how key informants working for zombie papers think it affects them, journalistic content, and their readers.

3. Method

This study rests on interviews with six key informants who are working or have worked as journalists for local and regional newspapers in North Rhine-Westphalia and Thuringia and have experience with zombie papers. They are current or former employees of zombie papers or work for news outlets that deliver content for zombie papers. Some are union representatives involved in labor negotiations with media outlets in emerging news deserts. Some are in leadership positions. Since all requested anonymity, they are listed merely by gender and status as either current or former journalists (Table 1). One participant is currently employed by a zombie paper; two work for a newspaper that supplies content for zombie papers. They were selected following a reading of German press coverage of the newspaper crisis and of zombie papers, beginning in 2007, the year the *Münstersche Zeitung* experienced layoffs and the event laid the groundwork for what, by 2013, became known as "zombie papers" (von Garmissen, 2020). No quantitative content analysis is provided. Instead, that exploratory reading guided the key informant selection and interviews and helps inform further research. Using Dow Jones Factiva, the search term Zombie *Zeitung* (zombie newspaper) yielded 20 results from January 1, 2007–December 31, 2022. During the same timeframe, a search of the term *Zeitungssterben* (newspaper deaths) resulted in 564 articles; 402 were found relevant since the primary topic of the news story was about the local and regional news crisis. A Google News search yielded eight more articles about zombie newspapers. The six key informants were recruited using snowball sampling,

beginning with one informant who had written about the situation in their region. They provided me with further names. Other informants were identified because they had been interviewed or written about the situation. Two informants identify as women, four as men, and all requested anonymity, with the majority citing their positions within the news organization as the reason. They stated that anonymity would allow them to speak more frankly. Two informants had first-hand knowledge of the situation in North Rhine-Westphalia and nationally. Of the four informants with first-hand experience in Thuringia, one also had knowledge and experience in North Rhine-Westphalia. Interviews lasted between 34 and 51 minutes.

The semi-structured, open-ended interviews were conducted via Zoom, recorded, and transcribed. The interviews began with an account of each informant's career, their experience with the newspaper industry, and their understanding of the newspaper crisis, as well as with zombie papers. Questions then focused on their assessment of what zombie papers mean for content production, work conditions, and citizens in their regions. Key informants help gain insights and inform research about a phenomenon. They allow the researcher to "develop a definition of the dimensions involved…discover boundaries of communities…identify extremes…[and] increase knowledge of the problem" (Tremblay, 1957, p. 692) Information can be collected in a relatively short amount of time from participants with access to inside or expert knowledge in a field (Houston & Sudman, 1975; Marshall, 1996).

4. Findings

4.1. Zombies

"It is dead but there is life in there, somehow," is how participant NRW-1 defined zombie papers, referring in particular to the paper he once wrote for, the *Westfälische Rundschau* in the state of North Rhine-Westphalia. It is the "somehow" in this statement that the following section is concerned with. Zombie papers and ghost papers are different iterations of local news products that are not what they once were. The discussions with key informants consulted for this study were grounded in the reality of their news outlets in their respective states. In the

Table 1. List of key informants.

Location/Expertise	Gender	Occupation
TH-1	Woman	Former journalist
TH-2	Woman	Journalist
TH-3	Man	Journalist
TH/NRW	Man	Journalist
NRW-1	Man	Journalist
NRW-2	Man	Journalist

Notes: TH = Thuringia; NRW = North Rhine-Westphalia; TH/NRW = Thuringia/North Rhine-Westphalia.

following sections, I summarize the situation in regions with zombie papers, first in North Rhine-Westphalia and then in Thuringia. This narrative is based on the coverage of the newspaper crisis and zombie papers, beginning in 2007. Interviews with participants centered around defining zombie papers, as well as the consequences for readers and their routines and practices based on their experiences.

4.1.1. NRW's Zombies

Although the term zombie papers was popularized by German unions in 2013, the 2007 firing of the entire staff of the *Münstersche Zeitung*, one of two local papers in the town of Münster, had been a warning shot. Eighteen reporters and staffers in the local newsroom were replaced overnight with lower-paid reporters, employees of publisher Lensing-Wolff's subsidiary, Media Service GmbH (Freiburg, 2007b). Readers were outraged; journalists' demands to protect the paper grew loud. Newly hired reporters were met with skepticism and, in some cases, ignored and boycotted by sources (Freiburg, 2007a). Seven years later, Lensing sold the paper to Aschendorff, publisher and owner of the other paper in town, the *Westfälische Nachrichten*. What was the—de facto—end of a two-paper town, however, did not appear as such, since both papers continued to publish, with one of them, the *Münstersche Zeitung* without a newsroom. It is fed with content from a regional news desk, competing papers, and the German Press Agency, *dpa* (von Garmissen, 2020). An analysis of the content published in this patchwork arrangement revealed a confusing mix of stories with headlines, images, and quotes modified to look like distinct products. The masthead, mandated to include contact information for editors-in-charge, listed the same names for both papers, yet with different addresses and numbers. "Apparently, the same people can work in two different places at the same time" (von Garmissen, 2020). In a cynical move, publisher Aschendorff asked employees to subscribe to all company papers in order to create yet another illusion: readers ("Zeitungsmitarbeiter sollen eigene," 2015).

What began as a cruel cost-saving measure had, by the time Lensing sold the paper in 2014, created a zombie: It was a newsroom without reporters, a newspaper made to look like an independent and distinct journalistic unit, while it was, in fact, produced by reporters from another, competing paper. The 2013 shake-up at the *Westfälische Rundschau* was, by comparison, swift. Publisher Funke was poised to buy Axel Springer's regional newspapers for €920 million, of which €260 million Funke borrowed from Springer ("WAZ-Nachfolger Funke-Gruppe," 2013). At that time the two organizations had already decided to cooperate on a joint distribution network (Axel Springer, 2015), creating a structure that would allow them to hollow out local papers without erasing them. Similar content-sharing arrangements now span most of Germany.

4.1.2. Thuringia

Funke Medien's entry into Thuringia's news market is part of what was arguably a hostile takeover of the former Democratic Republic's burgeoning free press, leaving virtually no East German-owned publications. Funke owns three dailies in Thuringia, the *Thüringer Allgemeine*, *Ostthüringer Zeitung*, and *Thüringische Landeszeitung*. By 2010 they began to cooperate, using not only the same regional stories from their central news desk but also copy-pasting each other's local stories. Following further cuts, Funke made an agreement with its competitor, *Freies Wort*, owned by Süddeutsche Holding. Funke papers can now use up to two full pages of local content produced by *Freies Wort*. Without their competitor's reporting, huge coverage gaps would exist. To TH-2 this is what makes them zombies: "To the outside we are the ones informing readers, we provide local news, although none of us reports from there." In the following, consequences for news content, news producers, and audiences from the perspective of key informants are discussed.

4.2. Journalists

A common theme among all interviewees was that zombie papers changed their working conditions and routines. One participant explained that knowing that a colleague from a competing paper might beat them to a story kept them on their toes. On the other hand, at least at first, TH/NRW recounted, government sources would delay their press conferences and say: "Let's wait for your colleagues to arrive." By now, officials know that there is only one paper in town. Since reporters working for the zombie paper do little reporting of their own, sources are at an advantage: "We'd love to play good cop, bad cop, like we used to," TH-3 said. For TH-2, working for a zombie paper means not being able to cover right-wing demonstrations on a regular basis, thereby handing over the discourse to populists. A sense of isolation has taken hold in both zombie papers and among journalists working for the paper producing copy for their colleagues. Centralized news desks in faraway regional hubs mean a loss of autonomy and control on the local and regional levels. As TH-1 described it, "The idea is that we can focus on the local." But without a competing newsroom, there is no diversity in the way events are covered, rendering coverage bland, lacking in depth, and less impactful.

Collaborating with zombie papers has required an adjustment in work routines as well. Editors can no longer walk away after a day's work but must prepare documentation for a smooth handover as they copy and paste their stories. The additional workload is not compensated. TH-3 explained that a new, internal hierarchy has emerged. At the top are editors and journalists employed by the publisher. All those hired after 2016 are employed by a subsidiary. At the bottom are lower-paid freelancers who receive 15 cents/line

published. While those in the first two categories enjoy more stability, their pay remains the same. Freelancers, while underpaid, are at least compensated with an additional 2 cents/line published in a zombie paper.

A particularly frustrating circumstance is the lack of access to granular, local-level metrics about viewership. TH-3 said this information would be useful to gauge how the newsroom's efforts were doing in the areas that were being covered by competing journalists. TH-3, who works in a leadership position, does not know whether the data simply does not exist or whether he is not allowed to see it. He added that neither subscription numbers nor metrics were shared. This lack of transparency is a constant theme. TH-2, for example, did not know how much their "zombie paper" was paying for access to the two pages they were allowed to use. They estimated €5,000/month but were not sure. Overall, both journalists working for zombie papers and those working for papers delivering content felt at the mercy of publishers in headquarters who had no connection to their communities and whose decisions were solely profit-driven. Although some suspected their readers were unaware of the shifts in ownership, others noticed a negative impact on readers' trust in their institution.

4.3. Readers

A recent survey of readers launched by Funke Medien in Thuringia was, according to TH-2, disheartening:

> Readers thought there was not a single journalist left in Thuringia, that our paper is produced in a different state entirely. This sticks in their mind and they don't reach out to let us know about an event. So we don't cover it.

Local networks had moved to blogs and social media platforms. Some commented that they missed direct contact with their readers. Without a newsroom, there was no office, no secretary, and no human presence. Several participants mentioned readers sending them a note asking if they were still in the area. TH-2 said they regularly receive letters for the other newspaper with a note saying that since they were all one entity anyway, surely, they'd forward the mail. Some key informants thought only decision-makers knew that, in effect, only one paper was left in town. But others spoke about encounters with readers, irritated about the fact that they saw their favorite reporter's byline in both papers. When they found out where the reporter was employed, they said they'd rather switch to that paper, so they could "get it straight from the original."

Key informants stressed that they were no longer able to serve their readers adequately and were frustrated that budget cuts were making it increasingly difficult. As editors and reporters working for zombie papers, they were pretending to be present. The confusion their readers expressed frustrated them. Most spoke about

this in theoretical terms as well, noting the threat to democracy that this decline in media diversity brings.

4.4. Content

Reporters working for the three Funke papers in Thuringia were concerned when their local newsrooms were eliminated and they moved to a regional hub. In the beginning, they tried to appear distinct by placing stories that ran on their competition's cover page on page three of their paper, hoping nobody would notice. They tried to coordinate coverage, picking up a story where the other paper had left off. When more staff was cut, they stopped customizing stories. They now have only their competitor, *Freies Wort*, to turn to for stories in locations where they used to have a newsroom. When reporters at the *Freies Wort* learned that their three competitors would use up to two full pages of their reporting, they worried: "We were afraid they'd take our best stuff, add some reporting and make us look bad," TH-3 said, adding that it turns out that they rarely use up their quota and often don't make good story choices. Participant TH-2 explained why: "*Freies Wort* stories are too long and since the deal prohibits them from making substantial edits, they have to take a pass more often than not." TH-3 noted that even regional content from their headquarters was often a mismatch: "The main part of the paper comes out of Stuttgart [200 miles away] and it makes a difference when stories are written by people with no connection to our local readers." Several key informants connected with zombie papers seemed resigned. "They just need paper with words on it to hold the ads," TH-2 remarked, noting that the advertisers were using more editorial content, albeit often more than a week old, and doing well.

Journalists in North Rhine-Westphalia have noticed similar developments. Fewer reporters are writing the stories and those they write are re-used across outlets. Many say it feels like their work is being thrown into one big pot, helping publishers mimic a competitive media environment. "Competition no longer exists among publishers," NRW-2, familiar with the national publishing scene and with conditions in NRW said: "Cooperation deals are made but there are no agreements about standards and practices." He added: "They are maintaining these Potemkin villages while pulling the rug from under us.''

5. Conclusion

The goal here was to explore the state of two emerging German news deserts in which zombie papers were being produced and to understand this practice as it relates to the country's dual media system. Working conditions, news content, and reader trust were three themes that emerged from a reading of coverage about the newspaper crisis and from interviews with key informants. Findings contribute to the existing literature about the state of news deserts around the world (Gulyás

& Baines, 2020) by identifying the gaps and setting the agenda for future research along these themes.

While US ghost papers and German zombies share many characteristics, Germany's news culture and the belief that news and information are a public good have kept newspapers afloat, albeit as zombies. Germany is considered more traditional in its news consumption, with nearly half of the population, as sampled in a recent Reuters Digital News Report, indicating overall trust in news media (Newman et al., 2022, p. 15). Yet I argue that the practice of publishing local news in these increasingly underserved regions that are ghost-written by competitors will erode the readers' trust. According to the same report, most digital subscriptions go to national brands (Newman et al., 2022, p. 15). Local papers cannot afford to lose more paying readers. Maintaining a physical presence matters. In some ways, the act of producing journalism is performative. Seeing reporters at town hall meetings, covering events and conducting interviews, and then reading the story one saw them produce is a valuable lesson in media literacy. When local newsrooms disappear and journalists are reduced to a byline, no longer visibly at work, a community suffers (Mathews, 2022). Authenticity, honesty, and transparency are crucial aspects of this lesson. Similarly, living with competing news outlets, a public-facing exchange of viewpoints and ideas models journalistic norms and practices. Along with news audiences, journalists are affected as well. As one key informant indicated, a class system within local and regional newsrooms has emerged, with the bottom tier feeding the zombie, never compensated for the additional labor this practice creates.

The key informants interviewed for this study agree that zombie papers' pretend-presence in what are effectively one-newspaper communities does more harm than good. Resistance to layoffs and newsroom closures is mostly fueled by union leaders. Their almost playful use of the term obscures the fact that zombies are mutating. While Dogruel et al. (2019) defined them as papers produced entirely with content from other papers, the variation in Thuringia is perhaps more deceptive: it deliberately pretends to be something that it is not. Future research into audience perceptions and responses to these deceptive practices would be useful. Especially in a society that is accustomed to public media, questions about the viability of public media as a local news source should also be explored (Neff & Pickard, 2021). Additionally, systematic content analyses of news produced by allegedly competing zombie papers, as well as in-depth studies of emerging norms and practices around this emerging form of satellite journalism, are indicated.

The zombie papers dotting the German local newspaper landscape exacerbate both the slim margin of trust in the news media and precarious working conditions. By creating a convoluted maze of high-level collaborations that are difficult to track, German publishers have created dangerous conditions. They are part of a construct that obscures ownership, mimics media diversity while undermining diversity, and helps build a wall behind which more layoffs and newsroom closures take place, out of sight until it is too late.

Conflict of Interests

The author declares no conflict of interests.

References

Abernathy, P. M. (2016). *The rise of a new media baron and the emerging threat of news deserts*. Center for Innovation and Sustainability in Local Media.

Abernathy, P. M. (2018). *The expanding news desert*. Center for Innovation and Sustainability in Local Media.

Abernathy, P. M. (2020). *The expanding news desert*. Center for Innovation and Sustainability in Local Media; University of North Carolina at Chapel Hill.

Assmann, K. (2022). Germany. In G. A. Borchard (Ed.), *The SAGE encyclopedia of journalism* (pp. 730–735). SAGE.

Axel Springer. (2015). *Axel Springer und FUNKE Mediengruppe: Bundeskartellamt erteilt Freigabe für das Vermarktungs-Joint-Venture* [Axel Springer and FUNKE Media Group: Federal cartel office approves marketing joint venture]. https://www.axelspringer.com/de/ax-press-release/axel-springer-und-funke-mediengruppe-bundeskartellamt-erteilt-freigabe-fuer-das-vermarktungs-joint-venture

Bagdikian, B. H. (2004). *The new media monopoly*. Beacon Press.

Beck, K., Reineck, D., & Schubert, C. (2010). *Journalistische Qualität in der Wirtschaftskrise* [Journalistic quality during an economic crisis]. UVK Verlagsgesellschaft Konstanz.

Beiler, M., & Gerstner, J. R. (2019). Newsroom- und Newsdeskstrukturen zur Reduzierung von Binnenkomplexität im crossmedialen Journalismus: Quantitativ-qualitative Mehrmethodenstudie zur Struktur und Bewertung der Redaktionsform bei den deutschen Tageszeitungen [Newsroom and newsdesk structures as measures to reduce complexity in the crossmedia journalis: A mixed method study of structures and evaluations of newsroom formats of German dailies]. In B. Dernbach, A. Godulla, & A. Sehl (Eds.), *Komplexität im Journalismus* [Complexity in journalism] (pp. 91–99). Springer.

Breese, E. B. (2015). The perpetual crisis of journalism: Cable and digital revolutions. *Fudan Journal of the Humanities and Social Sciences*, *8*(1), 49–59.

Brinkmann, J. (2018). *Verlagspolitik in der Zeitungskrise: Theorien, Strukturen, Strategien* [Politics of publishing during the newspaper crisis] (Vol. 12). Nomos Verlag.

Claassen, M. A. (2010). *Wandel und Zukunft der Tageszeitung: Ein traditionelles Druckmedium in Zeiten der Digitalen Revolution* [Change and future of the daily newspaper: A traditional print medium during a digial revolution]. GRIN Verlag.

Claussen, D. S. (2018). Media firms also downsize and breakup, not only merge and acquire. *Newspaper Research Journal*, *39*(2), 129–133. https://doi.org/10.1177/0739532918775742

Climenhaga, D. J. (2012, May 29). Toastmedia news announces cuts, dropped editions: Welcome to the world of zombie newspapers. *Rabble.Ca*. https://rabble.ca/politics/toastmedia-news-announces-cuts-dropped-editions-welcome-world-zo

Conte, A. (2022). *Death of the daily news: How citizen gatekeepers can save local journalism*. University of Pittsburgh Press.

Cushion, S. (2017). *The democratic value of news: Why public service media matter*. Bloomsbury.

Die Zeitungen. (2022). *Reichweiten*. https://www.die-zeitungen.de/argumente/reichweiten.html

DJV-NRW beklagt den fortwährenden Verlust an Meinungsvielfalt [DJV-NRW deplores the continued loss of plurality of opinion]. (2018, February 2). *DJV-NRW*. https://www.djv-nrw.de/startseite/info/aktuell/pressemitteilungen/details/news-djv-nrw-beklagt-den-fortwaehrenden-verlust-an-meinungsvielfalt

DJV-NRW fordert Funke zu Investition ins Lokale auf [DJV-NRW calls on Funke to invest in local]. (2023, January 31). *DJV-NRW*. https://www.djv-nrw.de/startseite/info/aktuell/online-meldungen/details/news-djv-nrw-fordert-funke-zu-investition-ins-lokale-auf

Dogruel, L., Berghofer, S., Vonbun-Feldbauer, R., & Beck, K. (2019). Die Publizistische Einheit als Auslaufmodell: Zur abnehmenden Validität eines pressestatistischen Standardmaßes [The publishing unit as discontinued model: About the declining validity of a stastical standard]. *Publizistik*, *64*(3), 329–344. https://doi.org/10.1007/s11616-019-00505-2

Donsbach, W., & Wilke, J. (2014). Rundfunk [Broadcast]. In E. Noelle-Neumann, W. Schulz, & J. Wilke (Eds.), *Das Fischer Lexikon Publizistik, Massenkommunikation* [Fischer encyclopedia of journalism and mass communication] (pp. 593–650). Fischer Taschenbuch Verlag.

Edge, M. (2022). Media conglomerates. In G. A. Borchard (Ed.), *The SAGE encyclopedia of journalism* (pp. 990–993). SAGE. https://doi.org/10.4135/9781544391199

Esser, F., & Brüggemann, M. (2010). The strategic crisis of German newspapers. In R. K. Nielsen & D. A. L. Levy (Eds.), *The changing business of journalism and its implications for democracy* (pp. 39–54). Reuters Institute.

Ferrier, M. (2014, February 28–March 1). *The media deserts project: Monitoring community news and information needs using geographic information system technologies* [Paper presentation]. AEJMC Midwinter Conference, University of Oklahoma, USA.

Ferrucci, P., & Alaimo, K. I. (2020). Escaping the news desert: Nonprofit news and open-system journalism organizations. *Journalism*, *21*(4), 489–506.

Folkenflik, D. (2022, October 31). Right-wing "zombie" papers attack Illinois democrats ahead of elections. *NPR*. https://www.npr.org/2022/10/31/1131422576/republican-conservative-democrat-media-news-newspapers-illinois-proft-timpone

Frei, N. (1987). Reform of the German press system. *Journalism Quarterly*, *64*(4), 793–798. https://doi.org/10.1177/107769908706400417

Freiburg, F. (2007a, January 1). Münster: Eine Stadt kämpft für ihre Zeitung [Münster: A city fights for ist newspaper]. *Der Spiegel*. https://www.spiegel.de/wirtschaft/muenster-eine-stadt-kaempft-fuer-ihre-zeitung-a-463008.html

Freiburg, F. (2007b, January 24). "Münstersche Zeitung": Verleger stellt ganze Redaktion kalt ["Münstersche Zeitung": Publisher sidelines entire newsroom]. *Der Spiegel*. https://www.spiegel.de/wirtschaft/muenstersche-zeitung-verleger-stellt-ganze-redaktion-kalt-a-461628.html

Grimberg, S. (2020, September 30). Die "Medienrevolution" blieb aus [The "media revolution" fails to appear]. *Medien360G*. https://www.mdr.de/medien360g/medienkultur/medienrevolution-in-ddr-100.html

Gulyás, Á. (2021). Local news deserts. In D. Harte & R. Matthews (Eds.), *Reappraising local and community news in the UK* (pp. 16–28). Routledge.

Gulyás, Á., & Baines, D. (2020). Introduction: Demarcating the field of local media and journalism. In Á. Gulyás & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 23–34). Routledge.

Hallin, D. C., & Mancini, P. (2004). *Comparing media systems: Three models of media and politics*. Cambridge University Press.

Hanitzsch, T., Hanusch, F., Ramaprasad, J., & de Beer, A. S. (2019). *Worlds of journalism: Journalistic cultures around the globe*. Columbia University Press.

Hardt, H. (1988). The accommodation of power and the quest for enlightenment: West Germany's press after 1945. *Media, Culture & Society*, *10*(2), 135–162.

Hardy, J. (2014). *Critical political economy of the media: An introduction*. Routledge.

Hasselbach, S., & Porter, V. (2002). *Pluralism, politics and the marketplace: The regulation of German broadcasting*. Routledge.

Hayes, D., & Lawless, J. L. (2021). *News hole: The demise of local journalism and political engagement*. Cambridge University Press.

Hofstetter, B., & Schönhagen, P. (2015). Wandel redaktioneller Strukturen und journalistischen Handelns [Transformation of newsroom structures and journalistic practices]. *SCM Studies in Communication and Media*, *3*(2), 228–252.

Houston, M. J., & Sudman, S. (1975). A methodological assessment of the use of key informants. *Social Science Research*, *4*(2), 151–164.

Howells, R. (2015). *Journey to the centre of a news black hole: Examining the democratic deficit in a*

town with no newspaper [Unpublished doctoral dissertation]. Cardiff University. https://orca.cardiff.ac.uk/id/eprint/87313

Huber, J. (2022, November 14). Haben ARD und ZDF eine Zukunft? Nur ein Drittel will zwei eigenständige Sender [Do ARD and ZDF have a future? Only a third wants two independent broadcasters]. *Der Tagesspiegel Online*. https://www.tagesspiegel.de/gesellschaft/haben-ard-und-zdf-eine-zukunft-nur-ein-drittel-will-zwei-eigenstandige-sender-8872615.html

Kah, V. (2023, January 25). Mahnwache zu 10 Jahren Zombie-Zeitung [Vigil for 10 years zombie-paper]. *DJV-NRW*. https://www.djv-nrw.de/startseite/info/aktuell/online-meldungen/details/news-mahnwache-zu-10-jahren-Zombie-zeitung

Kamber, E., & Imhof, K. (2011). *Medienkonzentration und Meinungsvielfalt: Informations-und Meinungsvielfalt in der Presse unter Bedingungen dominanter und crossmedial tätiger Medienunternehmen* [Media concentration and diversity: Information and media diversity in the press under conditions of dominant, multi-media media organizations]. BAKOM.

Keller, D., & Eggert, C. (2022). *Zur wirtschaftlichen Lage der deutschen Zeitungen 2022: Der BDZV-Branchenbeitrag* [About the economic situation of German newspapers in 2022: The BDVZ-industry report]. Bundesverband Digitalpublisher und Zeitungsverleger. https://www.bdzv.de/alle-themen/marktdaten/zur-wirtschaftlichen-lage-der-deutschen-zeitungen-2022

Kleinsteuber, H. J., & Thomass, B. (2007). The German media landscape. In G. Terzis (Ed.), *European media governance: National and regional dimensions* (pp. 111–123). Intellect Books.

Knight Foundation. (2022). *News in America: Public good or private enterprise?* https://knightfoundation.org/reports/news-in-america-public-good-or-private-enterprise

Knight Foundation. (2023). *News in America: Trust, media and democracy*. https://knightfoundation.org/reports/american-views-2023-part-2

Konieczna, M. (2018). *Journalism without profit: Making news when the market fails*. Oxford University Press.

Lardeau, M. (2020). What can we learn from independent family-owned local media groups? Case studies from the United Kingdom. In Á. Gulyás & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 236–247). Routledge.

Lee, M., & Butler, B. S. (2019). How are information deserts created? A theory of local information landscapes. *Journal of the Association for Information Science and Technology*, *70*(2), 101–116. https://doi.org/10.1002/asi.24114

Magasic, M., & Hess, K. (2021). Mining a news desert: The impact of a local newspaper's closure on political participation and engagement in the rural Australian town of Lightning Ridge. *Australian Journalism Review*, *43*(1), 99–114.

Mahone, J., Wang, Q., Napoli, P., Weber, M., & McCollough, K. (2019). *Who's producing local journalism? Assessing journalistic output across different outlet types*. Duke University. https://dewitt.sanford.duke.edu/whos-producing-local-journalism-nmrp-report

Manigk, H. (2015). *Einzeitungskreise und ihre Folgen für die journalistische Qualität* [Single newspaper districts and their impact on journalistic quality] [Unpublished master thesis]. Hochschule Magdeburg.

Marshall, M. N. (1996). The key informant technique. *Family Practice*, *13*(1), 92–97.

Mathews, N. (2022). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265. https://doi.org/10.1177/1464884920957885

McChesney, R. W. (2003). The problem of journalism: A political economic contribution to an explanation of the crisis in contemporary US journalism. *Journalism Studies*, *4*(3), 299–329. https://doi.org/10.1080/14616700306492

McChesney, R. W. (2016). *Rich media, poor democracy: Communication politics in dubious times*. The New Press.

McManus, J. (1994). *Market-driven journalism: Let the citizen beware?* SAGE.

McManus, J. (1995). A market-based model of news production. *Communication Theory*, *5*(4), 301–338.

Meier, W. A., & Trappel, J. (1999). Media concentration and the public interest. In D. McQuail & K. Siune (Eds.), *Media policy: Convergence, concentration and commerce* (pp. 38–59). SAGE.

Neff, T., & Pickard, V. (2021). Funding democracy: Public media and democratic health in 33 countries. *The International Journal of Press/Politics*. Advance online publication. https://doi.org/10.1177/19401612211060255

Newman, N., Fletcher, R., Robertson, C. T., Eddy, K., & Kleis Nielsen, R. (2022). *Digital news report 2022*. Reuters Institute. https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2022

Noam, E. M. (2016). *Who owns the world's media? Media concentration and ownership around the world*. Oxford University Press.

Nohr, H. (2011). *Vom Zeitungsverlag zur News Industry: Veränderung von Wertschöpfungsstrukturen und Geschäftsmodellen* [From publishing house to news industry: Changes in value creation and business models] (Vol. 11). Logos Verlag.

O'Hara, S. (2020). What can we learn from independent family-owned local media groups? Case studies from the United Kingdom. In Á. Gulyás & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 226–235). Routledge.

Picard, R. G. (1989). *Media economics: Concepts and issues* (Vol. 22). SAGE.

Pürer, H. (2015). *Medien in Deutschland: Presse-Rundfunk-Online* [Media in Germany: Press-broadcast-online]. UVK.

Röper, H. (1990). Formationen deutscher Medienmultis. *Media Perspektiven*, *12*, 755–774.

Röper, H. (2004). Formation deutscher Medienmultis [Formation of German media multinationals]. *Media Perspektiven*, *2*(2004), 406–432.

Röper, H. (2020). *Tageszeitungen 2020: Schrumpfender Markt und sinkende Vielfalt* [Shrinking market and declining diversity]. ARD MEDIA. https://www.ard-media.de/media-perspektiven/fachzeitschrift/2020/detailseite-2020/tageszeitungen-2020-schrumpfender-markt-und-sinkende-vielfalt

Royal, A., & Napoli, P. M. (2022). Local journalism without journalists metric media and the future of local news. *Journal of Creative Industries and Cultural Studies-JOCIS*, *8*, 119–147.

Rundfunkbeitrag. (2022). *Der Rundfunkbeitrag–Solidarmodell* [The broadcast fee solidarity model]. https://www.rundfunkbeitrag.de/der_rundfunkbeitrag/solidarmodell/index_ger.html

Sachs, M. (2017). Die Grundrechte des Art. 5 GG [Basic rights in Article 5 of the Constitution]. In *Verfassungsrecht II—Grundrechte* [In Constitutional Law II—Basic rights](pp. 373–425). Springer. https://doi.org/10.1007/978-3-662-50364-5_17

Schütz, W. J. (2012). Deutsche Tagespresse 2012 [German daily press 2012]. *Media Perspektiven*, *11*(2012), 570–593.

Sehl, A. (2013). *Partizipativer Journalismus in Tageszeitungen: Eine empirische Analyse zur publizistischen Vielfalt im Lokalen* [Participatory journalism in daily newspapers: An empirical analysis of editorial diversity in local news]. Nomos. doi.org/10.5771/9783845243061

Siles, I., & Boczkowski, P. (2012). Making sense of the newspaper crisis: A critical assessment of existing research and an agenda for future work. *New Media & Society*, *14*(8), 1375–1394.

Speakman, B., & Funk, M. (2021). What's on your page, on your pa-a-a-ge: Zombie content and paywall policies in American community newspapers, 2015–2020. *#ISOJ Journal*, *11*(1), 139–157. https://isoj.org/research/whats-on-your-page-on-your-pa-a-a-ge-Zombie-content-and-paywall-policies-in-american-community-newspapers-2015-2020

Statista. (2022). *Fake news in Germany*. https://www.statista.com/topics/5201/fake-news-in-germany

Steindl, N., & Hanitzsch, T. (2018). *Monitoring media pluralism in Europe: Application of the media pluralism monitor 2017 in the European Union, FYROM, Serbia & Turkey*. The Centre for Media Pluralism and Media Freedom.

Trauerzug für "Zombie-Zeitung" [Funeral process for "zombie newspaper"]. (2013, February 4). *Welt*. https://www.welt.de/print/welt_kompakt/duesseldorf/article113352646/Trauerzug-fuer-Zombie-Zeitung.html

Tremblay, M. A. (1957). The key informant technique: A nonethnographic application. *American Anthropologist*, *59*(4), 688–701.

Tröger, M. (2019). *Pressefrühling und Profit: Wie westdeutsche Verlage 1989/1990 den Osten eroberten* [Springtime for the press and profit: How West German publishing houses conquered the east in 1989/1990]. Herbert von Halem Verlag.

Vonbun-Feldbauer, R., Grüblbauer, J., Berghofer, S., Krone, J., Beck, K., Steffan, D., & Dogruel, L. (2020). *Regionaler Pressemarkt und Publizistische Vielfalt: Strukturen und Inhalte der Regionalpresse in Deutschland und Österreich 1995–2015* [Regional press market and editorial diversity: Structures and content of the regional press in Germany and Austria]. Springer.

von Garmissen, A. (2020, February 24). Wie man eine Zombie-Zeitung füllt [How to fill a zombie paper]. *Übermedien*. https://uebermedien.de/46106/wie-man-eine-Zombie-zeitung-fuellt

WAZ-Nachfolger Funke-Gruppe kauft Axel Springers Regionalzeitungen [WAZ successor Funke Group purchasing Axel Springers regional newspapers]. (2013, July 25). *Manager Magazin*. https://www.manager-magazin.de/unternehmen/artikel/waz-nachfolger-funke-gruppe-kauft-axel-springers-regionalzeitungen-a-913019.html

Weischenberg, S., Malik, M., & Scholl, A. (2012). Journalism in Germany in the 21st Century. In D. H. Weaver & L. Willnat (Eds.), *The global journalist in the 21st century* (pp. 205–219). Routledge.

Williams, A., Harte, D., & Turner, J. (2015). The value of UK hyperlocal community news. *Digital Journalism*, *3*(5), 680–703. https://doi.org/10.1080/21670811.2014.965932

Winseck, D. (2008). The state of media ownership and media markets: Competition or concentration and why should we care? *Sociology Compass*, *2*(1), 34–47. https://doi.org/10.1111/j.1751-9020.2007.00061.x

Zeitungsmitarbeiter sollen eigene Zeitung abonnieren [Newspaper employees asked to subscribe to their own paper]. *Süddeutsche Zeitung*. https://www.sueddeutsche.de/medien/posse-in-muenster-zeitungsmitarbeiter-sollen-mehrfach-eigene-zeitung-abonnieren-1.2611176

About the Author

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Article

A Discursive Evolution: Trade Publications Explain News Deserts to United States Journalists

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Abstract

Although diminishing newsrooms—and gaping holes in community news coverage—have been acknowledged in the US for over a decade, the term "news desert" did not widely emerge in discourse among industry professionals to refer to places that lacked news outlets until the fall of 2018. While much work in various disciplines, including journalism studies, aims to uncover the causes behind news deserts and the effects of their proliferation, scant research attempts to understand how journalists themselves see these issues. Utilizing metajournalistic discourse analysis of journalism trade magazines, this study examined seven publications and found 97 articles published between January 1, 2017, and September 30, 2022, that used the term "news desert." The aim is to understand how industry insiders constructed the concept and explained the repercussions of the phenomenon to other journalists. This has broader implications for understanding how journalism as an interpretive community constructs the field and the issues confronting it, particularly in times of crisis. This study found that industry leaders cannot agree on a clear definition of news deserts, have only recently begun to acknowledge the ethnic and socioeconomic communities most affected by a lack of news coverage, and rarely articulate, beyond generalities, the effects news deserts have on citizens. These results are then considered through the lens of journalistic reflexivity, national audience response, and potential solutions.

Issue

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1. A Discursive Evolution: Trade Publications Explain News Deserts to United States Journalists

Journalism in the US faces an existential problem: It is shrinking to the point that its very existence in numerous parts of the country remains tenuous at best, and completely lacking at worst. While local newspapers once thrived from coast to coast, there are now predictions that "one-third of American newspapers that existed roughly two decades ago will be out of business by 2025" (Sullivan, 2022, para. 4). In fact, while the entire journalism industry increasingly becomes economically unstable, "the most hard-hit segment of news organizations is unequivocally local news" (Ferrucci & Rossi, 2022, p. 4096). In August 2022, *Editor & Publisher* ran a "State of Local News" report on news deserts emphasizing the urgency of the problem, noting that "this is the most crucial issue facing the news industry and one of the most crucial issues facing our democracy, right now, is the availability of local news and information" (Holmes, 2022). The editorial choice to put this comment in a pullout quote raises questions about "how journalists as

an interpretive community construct their field and the issues confronting it" (Finneman & Thomas, 2021, p. 4), particularly in times of crisis.

While much work in various disciplines, including journalism studies, aims to uncover the causes behind news deserts and the effects of their proliferation, scant research attempts to understand how journalism itself sees these issues. Regardless of the causes and effects of news deserts, journalism needs to be part of the solution (Ferrucci & Perreault, 2022). However, prior work shows that the industry—and therefore the professional journalists that make up the industry—tend to lack reflexivity when it comes to the problems facing the profession (e.g., Ferrucci & Rossi, 2022; Klocke & McDevitt, 2013). What we mean by reflexivity, in this case, aligns with that of Klocke and McDevitt (2013) in that, historically, when publicly discussing their profession and its norms, journalists often avoid even approaching the idea that something they practice— for example, objectivity—could be partially responsible for a problem. This study aims to identify and comprehend how the journalism industry in America has evolved in its understanding and explanation of news deserts since the declaration of this "emerging threat" in late 2016 (Abernathy, 2016). To accomplish this goal, this research utilizes and analyzes metajournalistic discourse concerning news deserts in journalism trade magazines, publications which "have significant influence over how the industry as a whole socially constructs, both currently and historically…meanings" (Ferrucci et al., 2020, p. 1600). Much scholarship utilizing metajournalistic discourse analyzes trade magazines as a proxy for understanding the journalism industry as a whole since the general notion of a socially constructed industry is undergirded with the belief that the powerful—for example, elite trade magazines—represent the overall viewpoint of the industry as they have the agency to impact an entire field's belief systems (Carlson, 2016; Ferrucci et al., 2020). Metajournalistic discourses are public expressions that evaluate news, the practices that produce news, and the factors affecting the reception of news (Carlson, 2016). As with most industries, the field of journalism is discursively constructed, and public discourses in elite publications such as the ones analyzed here play a significant role in legitimizing and delegitimizing practices, defining normative behaviors, and reifying overall beliefs concerning the field (Zelizer, 1993). It is therefore essential to analyze how an industry discursively defines issues such as the increase in news deserts.

2. Literature Review

2.1. The News Business

In the late 19th century, the US newspaper industry navigated a transition from an industry funded and represented by political parties to one relying on advertising for production costs, a transition that not coinciden-

tally occurred in tandem with the professionalization of the industry (Waisbord, 2013; Winfield, 2008). In effect, journalism began operating as what Baker (1994) called a "dual-model product," a commodity that needed to sell itself as a public good to audiences, but then sold audience attention through advertising. This binary role as both a public service and a business put journalism in a sometimes-conflicting situation of having to please diametrically opposed missions (Bagdikian, 2004). From the turn of the century until roughly the 1980s, newspapers traditionally charged less for its product than it cost to manufacture simply because revenues came from advertising dollars that subsidized the journalistic practice (McChesney & Nichols, 2011). At the same time, newspapers proved to be one of the most lucrative industries in the US, consistently boasting profit margins higher than the vast majority of profitable businesses in the country (Bagdikian, 2004). This profit-making potential attracted the attention of corporations across the US and beyond and catalyzed a shift from local family-owned news organizations to chain ownership by the 1980s (Barnouw, 1997). Effectively, the newspaper industry in the US became appealing to large corporations and, ultimately, conglomerates looking to bolster bottom lines (Bagdikian, 2004).

As the 21st century began, most US news organizations became part of corporate chains, and while this development initially had minimal effects on staff size and professional practices (Lacy, 1989), once advertising revenue decreased substantially—and profits margins shrank—these large corporate chains began enacting plans aimed at stabilizing profits (Abernathy, 2018). These stabilizing efforts, begun in the 1990s and expanded during the financial crisis of 2007 and 2008, were in direct conflict with the altruistic public service that once-family-owned newspapers provided as news coverage shrank and spurred a wave of newspaper closings that continue occurring even today (Abernathy, 2018; Ferrier et al., 2016; Stites, 2018). These closings left many areas of the US, especially rural communities, without dedicated journalism coverage (Abernathy, 2018). While this seismic disruption to newspapers' historical business model ushered in a surge of digitally native news organizations (Ferrucci, 2019; Konieczna, 2018), these mostly nonprofit entities have not provided coverage to existing news deserts (Matherly & Greenwood, 2021; Miller, 2018). Therefore, while there is no doubt that a multitude of new market models of journalism have emerged in the US in recent years, the majority of these outlets exist in principally resource-rich geographic metropolitan areas also boasting legacy media (Matherly & Greenwood, 2021). Thus, few of these new organizations help solve problems triggered by news deserts. And while the term news desert might be "without a universally agreed-upon definition" (Benton, 2018, para. 4), the deleterious effects of their existence are clear. For residents in rural areas, civic life has become harder as citizens now hunt for

information and "act as reporters" with "often frustrating results" (Mathews, 2022, p. 1260). The same study found citizens concerned about a growing lack of civic engagement. Meanwhile, in the wake of the Covid-19 pandemic, concerns grow across the globe as communities without media outlets struggle to find helpful, credible news in an era of misinformation (Barnes et al., 2022; Murray, 2022). Concerns and implications surrounding the lack of information and coverage prompted by a news desert are often compounded in low-income and diverse communities.

2.2. News and Diversity

Although the term "news deserts" has grown in prominence in recent years, the concept has long existed in relation to diverse communities. Throughout its history, the US has struggled to accurately present minority groups accurately and fairly in the press (Wickham, 2004). Historians have documented that residents in minority communities across the US are rarely covered by local media unless a community member commits a crime, excels in sports, or achieves great success in entertainment—all tropes that fueled the creation of Black newspapers in the first place (Washburn, 2006). Valenzuela (1999, pp. 40–67) observed that the Kerner Commission reported as early as 1968 that the news was "almost totally white, both in appearance and attitude." Despite efforts in the 1990s and 2000s to increase newsroom diversity, the steep decline in the number of working US journalists over recent years has resulted in the neglect of stories "that reflect the growing communities of color" (Ferrier et al., 2016, p. 216). For example, despite being among the fastest-growing ethnic group in the US, Asian Americans remain underrepresented and misrepresented when they appear in news stories (Zhang, 2010). A similar fate has befallen Latinos, who are "largely absent from primetime broadcast news and mainstream online and print outlets" (Sui & Paul, 2017, p. 274), despite being a powerful voting bloc that is prominently featured in media coverage of election cycles. Race is not the only determining factor, though. More recently, scholars have observed that it remains critical to note the connection between the US news deserts and the "complex historical context" that certain populations have been "underserved" by journalists for generations, populations defined by both ethnicity and socioeconomics (Finneman et al., 2022, p. 340). The absence of information, whether due to race, economics, or geography, creates serious concerns about the impact of less-informed citizenship in a democratic government.

2.3. The Implications of News Deserts

When a community becomes a news desert, the deficiency of news "poses a far-reaching danger to civic engagement, the accountability of government and,

many analysts argue, democracy itself" (Miller, 2018, p. 59). The theorized danger aligns with an empirical study from Matherly and Greenwood (2021) that found corruption flourishes when communities become news deserts. The study also illustrated how a lack of accountability reporting in an area led to emboldened political actors embarking on illegal activity. In a sense, the existence of news deserts compounds already information-precarious areas of the US and beyond. In large metropolitan areas mostly unaffected by news deserts (Griffin, 2018), citizens typically have access to information from other sources beyond news (Plowden, 1994). However, when a small town or rural area loses its existing news source, that source typically represents almost 100% of the original reporting about that community (Miller, 2018). In the US and abroad, this leaves many non-metropolitan areas of the world without any news coverage whatsoever (Örnebring, 2018). This "erosion of community journalism leads to diminished democracy" (Ferrucci & Alaimo, 2020, p. 502). Often, diminished resources prompt newsrooms to make difficult decisions about what stories to even allocate funds toward, particularly when it involves investigative reporting (Binns & Arnold, 2021). Beyond simply information, accountability, and, more broadly, democratic ideals, the existence of a news desert also destabilizes community ties as local news organizations often play a vital community-building role within rural areas (Friedland, 2016; Fulwood, 2018). While it is undeniable that journalists themselves can only do so much to prevent news deserts and, overall, alleviate the overriding precarity within the industry (Friedland, 2016), it is also true that despite severe and arguably overwhelming economic disruption throughout the industry, "journalists continue behaving as if the normative patterns and notions acted on in newsrooms are beyond reproach" (Ferrucci & Rossi, 2022, p. 4107). This study seeks to understand how the journalism industry perceives the causes behind news deserts, and the effects news deserts have on communities.

2.4. Metajournalistic Discourse

Journalism, in terms of its norms, boundaries, ethics, and definitions, is a socially constructed field, something Zelizer (1993) labeled "an interpretive community." Essentially, as a discursively formed field, journalism is, at any specific moment, constructed "through both the exercise of institutionalized news practices and through explicit interpretative processes justifying or challenging these practices and their practitioners" (Carlson, 2016, p. 350). What this means is that while professional organizations, such as the Society for Professional Journalists, exist and a multitude of codes of ethics are utilized throughout the industry, there is no overriding governing body in US journalism. Therefore, the norms of the field, its boundaries, and its prevailing definitions that undergird the industry are reified and legitimatized or delegitimized through a discursive process,

a large piece of which involves what Carlson (2016) called metajournalistic discourse. Simplistically thought about as "what journalists say about their capacity to do what they ought to do" or "journalism about journalism" (Craft & Thomas, 2016, p. 1), metajournalistic discourse are public utterances emanating from publications. A foundational example from within journalism studies concerned the death of Princess Diana in 1997; after her death, many in the public blamed journalism. Journalists, though, believed paparazzi caused the death, not journalism, and therefore news organizations across the globe published public-facing articles explaining the boundaries of practice within the industry, effectively reifying the norms of the field and attempting the process of paradigm repair (Berkowitz, 2000).

As a way to bring an assemblage of related research under one umbrella concept, Carlson (2016) introduced and conceptualized a theory of metajournalistic discourse. The theory argues that there are three components that must be acknowledged and incorporated into any study of this type of discourse. The first is the site/audiences, which basically relates to where the discourse is published. For example, studying metajournalistic discourse from trade journalism magazines translates to an audience of insiders from the journalism field. The second component is the topic, which can be either reactive or generative. Reactive discourse focuses on one critical incident, such as the death of Princess Diana (Berkowitz, 2000), while generative discourse focuses on a situation concerning the entire field of journalism, such as labor precarity within the industry (Ferrucci & Rossi, 2022) or the role of gatekeeping in the field (Vos & Finneman, 2017; Vos & Thomas, 2018). Finally, the third component identifies the actors composing the discourse, which can be, most often, journalists, but also non-journalists such as bloggers (Vos et al., 2012), legal practitioners (Johnson et al., 2021), or even pop-culture creators (Ferrucci, 2018). For this study, which examines trade magazines, the audience is insiders within the journalism field, primarily journalists, the topic is generative in that it affects the entire industry, and the actors are journalists.

Studies such as this one allow researchers the ability to examine how reflexive journalism is about situations currently facing the industry. When it is possible to ascertain how reflexive journalism—and by proxy journalists—is about the profession, it provides an important glimpse into understanding the ability to change (Klocke & McDevitt, 2013). Various critical incidents in journalism, such as the spread of news deserts, often catalyze reflexivity (Ahva, 2013). Explicitly, this type of work assists in illuminating how and why journalism does what it does and how it understands those decisions.

3. Method

A study of metajournalistic discourse proceeds with the implicit understanding that the field of journalism is an interpretative community (Zelizer, 1993). The goal is to enhance knowledge as to how "journalistic practices, norms, and institutions come to be legitimated or contested" (Carlson, 2016, p. 354). Due to these notions undergirding any study of metajournalistic discourse, Craft and Thomas (2016) contended the optimal methodology is textual analysis. This allows researchers to interpret and extrapolate all possible meanings of the data, allowing for a deeper and more nuanced understanding of the belief systems providing a foundation within an industry at the moment of publication (Coffey & Atkinson, 1996; Fairclough, 2003).

For this study, the researchers gathered data by searching the term "news desert" from industry trade publications using a model created by Vos and Singer (2016) that initially identified 17 trade publications, including trade journals, content from journalism institutes, and traditional trade publications. This study only includes data from the US so, as argued by Ferrucci et al. (2020, p. 1592), the findings would "eliminate any potential differences due to national variances." The decision to only analyze content from trade publications aligns closely with numerous like-minded studies because while trade publications may not reach a majority of professional journalists, they maintain an immense influence in mirroring the norms of the field (Carlson, 2016; Ferrucci & Taylor, 2018).

In late 2016, news deserts were declared an "emerging threat" to the journalism industry (Abernathy, 2016). Consequently, the researchers examined all the major US journalism trade publications and ultimately collected data from the following seven outlets that featured content related to "news deserts" between January 1, 2017, and September 30, 2022: *Poynter*, *Nieman Lab*, *Nieman Reports*, *Nieman Storyboard*, *Columbia Journalism Review*, *Media Report to Women*, and *Editor & Publisher*. This sample is somewhat smaller than that used in other recent analyses of metajournalistic discourse due to selecting publications that included data on this topic and that operated continuously throughout the five-year period in order to track evolutions across time. This search provided 97 articles for analysis. Content that was not original to the trade publication was excluded and, if several versions of the same article appeared in the search, the final version was used.

The total *N* for articles unearthed and utilized as data is very similar to the total *N* from other studies with the same theoretical framework and methodology (e.g., Berkowitz, 2000; Ferrucci & Canella, 2023; Vos & Singer, 2016; Vos & Thomas, 2018). The unit of analysis for this current work is each complete article. Considering the theoretical framework of this, the findings section below follows the direction implemented by Vos and Singer (2016), individual publications and speakers quoted in articles are not identified in order to focus on themes presented by the industry as a whole (for all articles referenced, see the Supplementary Material).

This is intentional and suitable for this type of study in that identifiers would "take away from the themes presented by the industry as a whole" (Ferrucci & Rossi, 2022, p. 4101).

To analyze the data within this sample, the researchers utilized the process outlined by Emerson et al. (1995). First, the researchers entered the memo stage, which included a close reading of the data while making notes of noteworthy comments and phrases. Next, the researchers entered the open-coding stage, looking for and identifying emergent themes and patterns. Finally, the researcher completed the focused-coding stage with a third close reading, this time with the identified patterns and themes in mind and categorizing the data accordingly. In this particular case, all authors read all of the data and took part in the first two steps of the process. Once, together, the authors decided upon emergent themes, individual authors conducted the third stage of the analysis individually. In effect, a different author worked on each section of the findings, writing up each theme.

4. Results

The following section sets out to understand, as implicit in the review of the literature, how the metajournalistic discourse analyzed defines the term "news desert," recognizes its inclusiveness or lack thereof, and, finally, outlines the effects of news deserts.

4.1. Defining News Deserts

The conceptualization of "news deserts" was largely a tentative endeavor in journalism trade publications for the first three years after the alarm sounded that this was an emerging threat to the industry. Few articles defined the matter and, when they did, there were scattered interpretations. An early piece in 2017 went so far as to vaguely label all of New Jersey as a news desert while another briefly defined the concept as "no *daily* local news at all" (emphasis added), thereby giving an early metropolitan framework to the term. This remained the case in early 2018 when New York City and the US college town of Berkeley, California, were called news deserts due to a decline in the number of journalists and "less and less original coverage." This lack of coherence was called out in spring 2018 with the declaration that "'news desert' is a term without a universally agreed-upon definition" that included (a) no daily local news, (b) losing a newspaper, (c) communities ignored by media, (d) difficulty accessing news, (e) how many people subscribed to news, and (f) fewer journalists in newsrooms.

More clarity began to emerge after the release of Abernathy's (2018) US news desert study, which noted how many communities around the country had lost local news coverage. The following year, 2019, definitions of "news desert" in trade publications included "no general news publication [that] exists," communi-

ties "left behind" as media focused more on metropolitan areas, and towns that "completely lost news coverage." Yet by early 2020, the conversation had returned to New York City as a "topical" news desert and confusion if the concept referred to the quantity of reporting, quality of reporting, ease of reader access, the availability of a newspaper, or the ability to meet information needs of a community. A reference to Abernathy's news desert study briefly tried to provide more coherence to the definition by suggesting "a community without a newspaper" and "communities where residents are facing significantly diminished access" to local news. However, by early 2020, trade publications overall had provided little direction to the industry on the explication of news deserts in terms of both quantity and quality of metajournalistic discourse.

The onset of the Covid-19 pandemic in the spring of 2020, however, was a critical incident that resulted in an immediate increase in discourse about news deserts. Newspapers forced to close due to pandemic financial losses heightened interest in this discussion. Furthermore, the conversation began to place an increased emphasis on weekly newspapers as one article pointed to Abernathy's latest statistics that 1,700 of the 1,800 US newspapers lost since 2004 were weeklies. Throughout the year, the conceptualization of news deserts evolved into "entire communities without any local press presence" and "a place where there is limited access to the type of critical news and information that I need in order to make informed decisions about the quality of my life." Yet frustration emerged later in the year about the continued lack of agreement on how to define and measure news deserts "when dealing with a crisis as urgent as the one currently facing local news."

This sense of seriousness prompted even more metajournalistic discourse in 2021 across various trade publications. Rural communities again emerged as a critical topic, with news deserts defined as towns outside of urban areas that had "zero or one local news provider" and where a newspaper had closed. However, a suggestion emerged that the concept should focus on "coverage area" rather than cities as the unit of analysis and, as noted further below, discourse increasingly incorporated diverse populations into the explication discussion. Metajournalistic discourse in 2021 and 2022 increasingly emphasized a connection between "news deserts" and "quality" or "professional journalism," returning to earlier discourse that the conceptualization goes beyond the absence of a news outlet to include the performance of an outlet. Trade publications in 2022 further discussed news deserts in wide-ranging terms of (a) "rural and urban communities," (b) communities with "some traditional local news sources" deemed "inadequate," (c) the closure of a rural newspaper, and (d) "very limited access" to the news. Five years into the warning about news deserts, one trade publication bemoaned there still was not a sufficient definition of the concept, declaring it necessary to generate solutions. Even while

expressing an urgency to address this industry problem, however, only 31 articles total appeared among *all* journalism trade publications over the course of 2021. This reinforces prior scholarship (i.e., Ferrucci & Rossi, 2022; Klocke & McDevitt, 2013) that journalists tend to lack reflexivity when it comes to the problems of their profession.

4.2. Race and Ethnicity

It was rare for trade publications to link news deserts with broader racial disparities between 2017 and 2020. Stories that did mention race or ethnicity did so mainly in passing or as a matter of newsroom demographics. There are, however, a handful of notable exceptions, such as a column published in early 2020 that pondered how a lack of local news in south Georgia delayed coverage of the death of Ahmaud Arbery, a Black jogger who was shot to death in February 2020 by two White men who thought he was a burglar:

> A big reason it took so long for this story to become a major one: where it happened. Brunswick, Georgia, isn't quite in a news desert, but it's close….Maybe if it had happened in downtown Atlanta, it would have gotten more attention. But in Brunswick? With no media spotlight? With no charges filed? It almost slipped through the cracks.

Another article published around the same time explored how communities of color are often the first to feel abandoned by shrinking local news resources: "African American residents struggled to remember when members of the Black community were featured in the local newspaper…except for criminal activity." The article, based on research conducted in central Pennsylvania, also described how the Latinx community was frustrated by both a lack of comprehensive coverage and the absence of Spanish-language media in the area. It argued that finding ways to serve Latinx audiences took on new urgency during the Covid-19 pandemic as "it is a matter of public health that more news and information be made available in Spanish and other languages."

The highest concentration of stories about the role of race in news deserts followed the May 2020 murder of George Floyd, a Black man killed by a White police officer, and the ensuing Black Lives Matter protests. During that time, trade publications paid more attention to structural racism in journalism and its impacts: "We hear a lot about the disinvestment in news, about news deserts—but…we can't address the problems of revenue for news in low-income areas without addressing income inequality itself." An article from early 2021 attempted to quantify the problem, pointing to data showing that municipalities in New Jersey with large Hispanic populations are more likely to be news deserts and that the crisis of local journalism impacted less affluent, rural, and Black/Latinx communities.

Some coverage explored potential solutions to racial inequities, including efforts by Report for America to place more journalists at ethnic media organizations, and profiles of new publications, like *The Harvey World Herald*, which was founded by Amethyst J. Davis to serve minority audiences in a suburb of Chicago. Davis was profiled in the spring of 2022 in an article that framed her efforts as an example of media entrepreneurs working to meet the information needs of underserved audiences "against the odds of today's media landscape." Another story published a few months later described philanthropic efforts to support journalists of color in Georgia leading the type of "news outlets that funders have traditionally ignored." In short, while more recent discourse suggested a clear connection between news deserts and various racial and socioeconomic findings, overall, the discourse in trade publications failed to clearly and cohesively articulate this obvious connection.

4.3. Understanding (or not) the Effects of News Deserts

The discourse analyzed in trade publications to understand how the industry conceives the effects of news deserts presents four ramifications. The effect identified most often concerned how news deserts result in fewer journalists covering local government. One article noted, for example, how citizens in news deserts "had no idea what was happening at City Council." Another discussed how there are not enough journalists to cover school boards, planning boards, or county commissioner meetings, effectively the organizations making decisions about communities. As one piece noted:

> Local newspapers particularly have a history of showing up at every board meeting, maybe even the committee meetings, working these sources over time, and being able to get at, through this detailed beat and local coverage, how people's tax dollars are being spent.

While many of the articles discussing this effect did not explicitly note how this actually mattered, occasionally an article attempted to articulate this. One noted that, in a particular news desert, locals were complaining that there was not enough information to help them make decisions when electing local officials and passing budgets. Another, discussing a survey of residents in news deserts, concluded that "respondents were clear that a wide range of local issues and institutions were not getting sufficient coverage."

The second main effect recognized within the discourse concerned a diminished sense of democracy evident in news deserts, something one story described as "general chaos for democracy." Many pieces noted a lack of trust in civic institutions and blamed news deserts but did not discuss why this particular lack of trust existed far beyond news deserts. This distrust or diminished democracy, according to the trade publications, is

because, in news deserts, there is no journalism to shine a spotlight on concerns that are "more inclusive, equitable, and accountable to more communities," and not enough "information that matters to people who don't have access to it today." More specifically, this diminished democracy spreads without "more reporters on the ground (that) will help repair the rupture between local media and the residents they serve."

The third effect noted by industry publications surrounded the idea that while non-local journalists will helicopter in for a big story, these news organizations often focus on the micro aspects of a story without thinking about the macro elements important to local communities. For example, numerous stories talked about news deserts receiving coverage when, say, a murder happens, but those pieces focus on the grisly and salacious details rather than the issues impacting the community and these journalists are not "working to provide reliable information in a context that makes it as useful as possible." This type of coverage also focuses on the negative, which results in readers asking themselves: "Why would I pay for a monthly subscription for regional coverage, and the occasional salacious, usually negative, story about my own town, when day-to-day news that affects me as a citizen, taxpayer and parent goes uncovered?" In short, news desert residents do not receive news about their communities, and when they do, it often does not focus on the elements that matter to them.

Finally, the last effect of news deserts uncovered in the discourse is that these communities, due to a dearth of local news, turn to disinformation or misinformation to fill the gap. One piece noted that while national news does interest residents of a news desert, the "vacuums in local journalism" are being filled by misinformation and disinformation, while another noted that this effect was especially salient during the pandemic as it "paved the way for misinformation to take hold and hindered journalism on breakdowns in the official response." While discussing a lack of reporting in a news desert, one source in a story said: "We actually have a contested local election in my township, first time in a while, but the only place I can get any information is on Facebook and what I read there I don't trust." As this discourse analysis revealed, the journalism industry believes that the serious ramifications of news deserts run the gamut from fewer journalists covering communities and democracy in chaos to growing distrust and expanding vacuums of misinformation as citizens look elsewhere to fill the journalistic void.

5. Discussion

The obvious and clear takeaway from this study's findings illustrates the dire need for journalism to approach thinking about the issues happening within the profession with more reflexivity. Following the findings of Ferrucci and Rossi (2022) and Klocke and McDevitt (2013), among others, this study unearthed a startling lack of reflexivity

among journalists writing for trade magazines concerning news deserts; this can be extended to believe that few journalists probably show reflexivity in this vein as well. The future needs to begin with conceptualizing—coupled with a concept explication—a clear definition for the term itself. Despite a large, data-filled report from Abernathy (2018) and in subsequent years, trade publications still fail to consistently provide a clear definition of the term "news desert" to other journalists. Without a clear definition, it is virtually impossible for the industry to formulate a solution to the problem and consistently articulate to stakeholders why such solutions matter.

The much more salient and permeating issue, according to this study's findings, concerns the lack of understanding of any specific effects emanating from news deserts. Much of the data analyzed here laments journalists not covering local governmental meetings, the spread of misinformation, or journalism's importance in a democracy. The problem, of course, is that none of these effects clearly communicate to the journalists, or more importantly to the public, why news deserts should matter. More succinctly, while it seems obvious and a historical normative notion that journalism is central to a democracy, that is a macro-level understanding that does not clearly link how news deserts affect citizens. For example, democracy is a historically vague concept, one often taken for granted in nations (Haugaard, 2010). Tying the effects of news deserts to a vague notion of diminished democracy, then, would seem rather ineffective.

This also allies with the notion of decreased coverage of standard government functions, such as school boards. While no doubt audiences understand the value of this type of coverage in times of controversy or malfeasance, journalists themselves often fetishize this continued coverage in a way that does not resonate with audiences (Pavlik, 2004). This does not mean we are arguing against the need for consistent coverage of government—far from that—but rather why that line of argument for explaining why news deserts have deleterious effects seems insufficient, especially when combined, as this data illustrated, with a lack of real-world examples of this diminished coverage's very real effects on communities. This once again illustrates a non-interrogated devotion to a norm that is just assumed to be understood by all.

Overall, this study demonstrates that news deserts, arguably the biggest threat to the survival of journalism, are covered in a limited and macro manner by the industry. Ferrucci and Rossi (2022) found the same lack of reflexivity but also noted the news industry provides consistent coverage about its own professional precarity. However, here we show that when the concern revolves around citizens, and not journalists themselves, there is a decidedly limited amount of coverage. Specifically, when the problem involves a direct effect on journalists, such as the loss of jobs, the effects are clearly delineated to the industry, but when the effects are directly related to the public, not so much.

This is problematic and emblematic of a profession that seemingly cannot do itself any favors with the public (Nelson, 2021). Furthermore, this study provides additional evidence of the disconnect between journalism and lower-socioeconomic and diverse communities on an issue that directly impacts these demographics.

Future research should examine a broader sample of metajournalistic discourse, such as how newspapers have constructed the concept of news deserts to readers, as well as interviews with state newspaper associations, national journalism foundations and organizations, and other industry leaders to understand their conceptualizations of news deserts and the impact of the loss of local news coverage on the public.

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Conflict of Interests

The authors declare no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the authors (unedited).

References

Abernathy, P. M. (2016). *The rise of a new media baron and the emerging threat of news deserts*. Center for Innovation and Sustainability in Local Media. https://www.usnewsdeserts.com/wp-content/uploads/2016/09/07.UNC_RiseOfNewMediaBaron_SinglePage_01Sep2016-REDUCED.pdf

Abernathy, P. M. (2018). *The expanding news desert*. Center for Innovation and Sustainability in Local Media. https://www.cislm.org/wp-content/uploads/2018/10/The-Expanding-News-Desert-10_14-Web.pdf

Ahva, L. (2013). Public journalism and professional reflexivity. *Journalism*, *14*(6), 790–806.

Bagdikian, B. H. (2004). *The new media monopoly*. Beacon Press.

Baker, C. E. (1994). *Advertising and a democratic press*. Princeton University Press.

Barnes, R., Dugmore, H., English, P., Natoli, R., & Stephens, E. J. (2022). "This is ridiculous—I need to start a paper…": An exploration of aims and intentions of regional print proprietors of post-Covid start-up newspapers. *Media International Australia*, *184*(1), 21–34.

Barnouw, E. (Ed.). (1997). *Conglomerates and the media*. New Press.

Benton, J. (2018). That *Politico* article on "news deserts" doesn't really show what it claims to show. *Nieman Lab*. http://www.niemanlab.org/2018/04/that-politico-article-on-news-deserts-doesnt-really-show-what-it-claims-to-show

Berkowitz, D. (2000). Doing double duty: Paradigm repair and the Princess Diana what-a-story. *Journalism*, *1*(2), 125–143.

Binns, A., & Arnold, S. (2021). Death of a watchdog: Reduced coverage of Coronores' inquests by local media. *Journalism Practice*, *15*(10), 1460–1478.

Carlson, M. (2016). Metajournalistic discourse and the meanings of journalism: Definitional control, boundary work, and legitimation. *Communication Theory*, *26*(4), 349–368.

Coffey, A., & Atkinson, P. (1996). *Making sense of qualitative data: Complementary research strategies*. SAGE.

Craft, S., & Thomas, R. J. (2016, June 9–13). *Metajournalism and media ethics* [Paper presentation]. 66th Annual Conference of the International Communication Association, Fukuoka, Japan.

Emerson, R., Fretz, R., & Shaw, L. (1995). *Writing ethnographic fieldnotes*. University of Chicago Press.

Fairclough, N. (2003). *Analysing discourse: Textual analysis for social research*. Routledge.

Ferrier, M., Sinha, G., & Outrich, M. (2016). Media deserts: Monitoring the changing media ecosystem. In M. Lloyd & L. A. Friedland (Eds.), *The communication crisis in America, and how to fix it* (pp. 215–232). Springer.

Ferrucci, P. (2018). Mo "meta" blues: How popular culture can act as metajournalistic discourse. *International Journal of Communication*, *12*, 4821–4838.

Ferrucci, P. (2019). *Making nonprofit news: Market models, influence and journalistic practice*. Routledge.

Ferrucci, P., & Alaimo, K. I. (2020). Escaping the news desert: Nonprofit news and open-system journalism organizations. *Journalism*, *21*(4), 489–506.

Ferrucci, P., & Canella, G. (2023). Resisting the resistance (journalism): Ben Smith, Ronan Farrow, and delineating boundaries of practice. *Journalism*, *24*(3), 513–530.

Ferrucci, P., Nelson, J. L., & Davis, M. P. (2020). From "public journalism" to "engaged journalism": Imagined audiences and denigrating discourse. *International Journal of Communication*, *14*, 1586–1604. https://ijoc.org/index.php/ijoc/article/viewFile/11955/3010

Ferrucci, P., & Perreault, G. (2022). Local is now national: *The Athletic* as a model for online local news. *New Media & Society*. Advance online publication. https://doi.org/10.1177%2F14614448221117748

Ferrucci, P., & Rossi, M. (2022). "Pivoting to instability": Metajournalistic discourse, reflexivity and the economics and effects of a shrinking industry. *International Journal of Communication*, *16*, 4095–4114.

Ferrucci, P., & Taylor, R. (2018). Access, deconstructed: Metajournalistic discourse and photojournalism's shift away from geophysical access. *Journal of Communication Inquiry*, *42*(2), 121–137.

Finneman, T., Heckman, M., & Walck, P. E. (2022). Reimagining journalistic roles: How student journalists are taking on the U.S. news desert crisis. *Journalism Studies*, *23*(3), 338–355.

Finneman, T., & Thomas, R. J. (2021). "Our company is in survival mode": Metajournalistic discourse on Covid-19's impact on U.S. community newspapers. *Journalism Practice*, *16*(10), 1965–1983. https://doi.org/10.1080/17512786.2021.1888149

Friedland, L. A. (2016). America's critical community information needs. In M. Lloyd & L. A. Friedland (Eds.), *The communication crisis in America, and how to fix it* (pp. 3–15). Springer.

Fulwood, S., III. (2018, October 17). As "news deserts" widen across America, communities and civic engagement fray. *Think Progress*. https://thinkprogress.org/news-deserts-widen-across-america-new-study-037965b22dc6/

Griffin, R. (2018). Local news is dying, and it's taking small town America with it. *Bloomberg*. https://www.bloomberg.com/news/articles/2018-09-05/local-news-is-dying-and-it-s-taking-small-town-america-with-it

Haugaard, M. (2010). Democracy, political power, and authority. *Social Research*, *77*(4), 1049–1074.

Holmes, V. (2022, August 25). The state of local news 2022. *Editor & Publisher*. https://www.editorandpublisher.com/stories/the-state-of-local-news-2022,237863

Johnson, B. G., Thomas, R. J., & Fuzy, J. P. (2021). Beyond journalism about journalism: Amicus briefs as metajournalistic discourse. *Journalism Practice*, *15*(7), 937–954.

Klocke, B., & McDevitt, M. (2013). Foreclosing deliberation: Journalists' lowering of expectations in the marketplace of ideas. *Journalism Studies*, *14*(6), 891–906.

Konieczna, M. (2018). *Journalism without profit: Making news when the market fails*. Oxford University Press.

Lacy, S. (1989). A model of demand for news: Impact of competition on newspaper content. *Journalism Quarterly*, *66*(1), 40–48.

Matherly, T., & Greenwood, B. N. (2021). No news is bad news: Political corruption, news deserts, and the decline of the fourth estate. *Academy of Management Proceedings*, *2021*(1). https://doi.org/10.5465/AMBPP.2021.10153abstract

Mathews, N. (2022). Life in a news desert: The perceived impact of a news closure on community members. *Journalism*, *23*(6), 1250–1265.

McChesney, R. W., & Nichols, J. (2011). *The death and life of American journalism: The media revolution that will begin the world again*. Nation Books.

Miller, J. (2018). News deserts: No news is bad news. In M. Hendrix (Ed.), *Urban policy 2018* (pp. 59–76). Manhattan Institute.

Murray, R. (2022). The ghosts of News Corp: Journalism and news in post-Murdoch regional Queensland. *Ethical Space: The International Journal of Communication Ethics*, *19*(1), 31–38.

Nelson, J. L. (2021). *Imagined audiences: How journalists perceive and pursue the public*. Oxford University Press.

Örnebring, H. (2018). Journalism cannot solve journalism's problems. *Journalism*, *20*(1), 226–228. https://doi.org/10.1177/1464884918808690

Pavlik, J. V. (2004). A sea-change in journalism: Convergence, journalists, their audiences and sources. *Convergence*, *10*(4), 21–29.

Plowden, D. (1994). *Small town America*. Abrams.

Stites, T. (2018, October 15). About 1,300 U.S. communities have totally lost news coverage, UNC news desert study finds. *Poynter*. https://www.poynter.org/news/about-1300-us-communities-have-totally-lost-news-coverage-unc-news-desert-study-finds

Sui, M., & N., Paul. (2017). Latino portrayals in local news media: Underrepresentation, negative stereotypes, and institutional predictors of coverage. *Journal of Intercultural Communication Research*, *46*(3), 273–294.

Sullivan, M. (2022, June 29). Every week, two more newspapers close—And "news deserts" grow larger. *The Washington Post*. https://www.washingtonpost.com/media/2022/06/29/news-deserts-newspapers-democracy

Valenzuela, M. (1999). Expanding coverage of diversity beyond ethnicity and race. *Journalism and Mass Communication Educator*, *54*(2), 40–67.

Vos, T. P., Craft, S., & Ashley, S. (2012). New media, old criticism: Bloggers' press criticism and the journalistic field. *Journalism*, *13*(7), 850–868.

Vos, T. P., & Finneman, T. (2017). The early historical construction of journalism's gatekeeping role. *Journalism*, *18*(3), 265–280.

Vos, T. P., & Singer, J. B. (2016). Media discourse about entrepreneurial journalism. *Journalism Practice*, *10*(2), 143–159. http://dx.doi.org/10.1080/17512786.2015.1124730

Vos, T. P., & Thomas, R. J. (2018). The discursive (re)construction of journalism's gatekeeping role. *Journalism Practice*, *13*(4), 396–412. https://doi.org/10.1080/17512786.2018.1478746

Waisbord, S. (2013). *Reinventing professionalism: Journalism and news in global perspective*. Wiley.

Washburn, P. (2006). *The African American newspaper: Voice of freedom*. Northwestern University Press.

Wickham, K. (2004). An examination of diversity issues in SE journalism college newspapers. *Newspaper Research Journal*, *25*(3), 103–109.

Winfield, B. H. (2008). *Journalism 1908: Birth of a profession*. University of Missouri Press.

Zelizer, B. (1993). Journalists as interpretive communities. *Critical Studies in Media Communication*, *10*(3), 219–237.

Zhang, Q. (2010). Asian Americans beyond the model minority stereotype: The nerdy and the left out. *Journal of International and Intercultural Communication*, *3*(1), 20–37.

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Article

Backed Into a Corner: Structural Changes That Lead to Local News Deserts

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Abstract
On the surface, it may look like there are no news deserts in the Czech Republic, but that does not mean that all audiences are able to get relevant local news. Apart from independent local news outlets, which are diminishing, Czech districts are served by information provided either by a delocalised publishing chain or a municipality press that promotes the local government. I will focus on the emergence of news deserts from the perspective of independent local newspapers, especially on the structural changes that lead to the declining number of media outlets that offer local news in Czechia. Moreover, I take the bottom-up approach to reflect on the local journalists' point of view. The mixed-method research, which was conducted in 2019 and 2020, consisted of a survey of local newspaper owners and in-depth interviews with local journalists. I identified several structural changes to both the local newspapers and to the general publishing industry that have led to growing organisational and economic problems for the local newspapers, and often to their demise. Local news is still carried by newspapers, which depend on the traditional business model and are slow with their digital transition. Their survival is based on (non)cooperation with either ancillary organisations (printing office, distribution firm, and sales outlet) or other local newspapers. Newspapers are cornered by the demands of external actors; their economic stability depends on the self-sufficiency of their production.

Keywords
entrepreneurial initiative; local journalists; local media; media cooperation; media infrastructure; news desert; newspapers' self-sufficiency; structural changes

Issue
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1. Introduction

While it might look like there are no news deserts in the Czech Republic (Abernathy, 2018; Gulyas, 2021; Napoli et al., 2018), that does not mean that audiences in every locality get relevant local news. Apart from the independent local print outlets, which are gradually disappearing from the media landscape, the Czech districts are served with the news either from a publishing chain or a municipality press. The centralisation and delocalisation of function and content, and the latter promotion of local governments, mean that people who live in some localities fail to receive relevant local information (Waschková Císařová, 2017).

Authors often cite general economic and technological developments in the media as reasons for the emer-

gence of news deserts. The question is: What are the reasons that make it difficult or impossible for local media to survive? The important aspect is to recognize that local media depends on local infrastructure and actors, including audience, employees, and a publishing infrastructure that includes a printer, distribution, and newsstands. In short, the analysis of a newspaper should encompass all the important elements of production dynamics (Deuze & Witschge, 2018).

Therefore, I will focus on the emergence of news deserts from the perspective of independent local newspapers, aiming specifically at the structural changes that lead to the declining number of media outlets that offer local news in the Czech Republic and addressing the problems that, from the local journalists' point of view, paved the way for the emergence of news deserts. More

particularly, the structural changes are viewed primarily through the lens of the changes in the production, distribution, and business strategies of local newspapers.

2. The Structural Changes That Lead to News Deserts

News deserts, which are areas that are not covered by any media with news content, have gradually become a topic within the development of local media (Abernathy, 2018; Barclay et al., 2022; Gulyas, 2021; Mathews, 2022; Napoli et al., 2018). The concern is grounded in the shared and data-supported view that local newspapers "are significant contributors to vibrant, well-functioning local democracies" (Lindgren et al., 2019, p. 7) by serving information to the local audience (Jenkins & Nielsen, 2018).

In describing the news desert, authors primarily address the consequences, like what it means for a particular community to lose a source of news information (Abernathy, 2018; Mathews, 2022). However, it is important to change these optics. The focus should be on what causes the news deserts. This can contribute to systemic change, or at least to the public discussion.

Most authors name the reason for the loss of local newspapers as either the decline of circulation and advertisement (Abernathy, 2018; Lindgren et al., 2019) or a slow-paced digital transition (Jenkins & Nielsen, 2018; Waschková Císařová, 2023). Nevertheless, research shows that local newspapers "still derived the majority of revenues from their print newspapers, whether through subscriptions, advertising, or newsstand sales" and insist on maintaining the traditional business model (Jenkins & Nielsen, 2018, Chapter 4.1, para. 1).

The emergence of a news desert is closely linked to key transformations in the media-production infrastructure: printing, distribution, and sales (Napoli et al., 2017). While the traditional media infrastructure is breaking down and therefore complicating or making it impossible to survive, the online media infrastructure is emerging hesitantly and more slowly, preventing the organic formation of new media types (Jenkins & Nielsen, 2018). Bowd (2009, p. 50) mentions the concentration of printing facilities: "Whereas once most local newspapers had printing presses on site and supplemented their income by taking on outside printing work, now most papers are printed in another town or city," which has "the potential to loosen the ties between newspaper and community of circulation" (cf. Anderson, 2013).

To understand a local infrastructure, Kim and Ball-Rokeach (2006, p. 175) propose a communication infrastructure theory that "provides a theory-driven guide to assess the capacities of community communication infrastructures for building and maintaining civic communities in the contemporary urban environment." Communication infrastructure theory "focuses on various communication opportunity structures, or communication infrastructures, that make it either easy or difficult for residents of a local community to build community"

(Kim & Ball-Rokeach, 2006, p. 175); therefore looks at the topic, which is at the other side of the "same coin."

Local media organisations have two different production strategies that are connected to their survival (Ferrucci & Alaimo, 2020). First, there is the active approach in terms of economic self-sufficiency and entrepreneurial initiative (Ekdale et al., 2015; Mishra & Spreitzer, 1998). These active publishers try to find a way out of their economic problems. One way is through business-model diversification: "Incorporating events, in-house marketing and B2B content firms, interest-based magazines and free newspapers, and online commerce (real estate, auto sales, job-search sites)" (Jenkins & Nielsen, 2018, Chapter 4, para. 2). As part of this strategy, "publishers are therefore trying to branch out into other business ventures, such as stationery sales, printing services, specialty publications" (Lindgren et al., 2019, p. 43). Second, cooperation/collaboration is often used: "Collaborations in various forms are becoming increasingly common as a way to pool limited resources and produce quality journalism" (Lindgren et al., 2019, p. 52; cf. Abernathy, 2018). Deuze and Witschge (2018, p. 173) think that "media professionals as well as their audiences are increasingly (expected to be) working together, to converse and co-create." Nevertheless, Hatcher and Thayer (2017, p. 1286) are aware of the problems that may arise from cooperation, mentioning that "hesitations with partnerships on behalf of the journalists themselves have also been described as a trust issue," and they reflect that "one of the biggest road-blocks to success for organizations considering a partnership could be that the ideas of competition are so ingrained in many journalists that they find it difficult to agree to or enjoy, working with other journalists" and that there is "a tension when one organization is perceived to be doing more work or giving more than they get out of the partnership.''

This article seeks to explore how local-media journalists perceive the reasons for the creation of news deserts, and how they define the structural causes of the problematic developments within local media. The main angle is focused on individuals' responses to the infrastructural changes of local-media publishing, and how it reflects the structural changes and problems that paved the way to the emergence of news deserts. Similar to Jenkins and Nielsen (2018), the analysis focuses on the production, distribution, and business strategies of local newspapers, specifically their entrepreneurial initiative, production self-sufficiency, and cooperation.

3. Methods

This mixed-method study consisted of a survey of all the owners of local Czech newspapers and in-depth interviews with local journalists in Czechia during 2019 and 2020. The research is part of a wider project that, since 2009, has focused on the specificities of local media in the Czech context (Local media, n.d.).

Research in 2019 and 2020 consisted of two steps. The first was to update the existing database of the local press in Czechia by means of questionnaires with local newspaper representatives. The resultant data covers the basic characteristics of the newspapers (e.g., periodicity and scope) and newsrooms (e.g., number of members and hierarchy). The data, which was obtained from all 30 active newsrooms in 2019, were then used to argue for the emergence of news deserts when compared to the same data from 2009 and 2014. The second step was in-depth interviews with 33 local newspaper workers conducted from November 2019 to February 2020, representing all existing and some no longer existing local newspapers' newsrooms (Brennen, 2013). As follows from the survey, in 2019 there were 88 local newspaper workers in the Czech Republic (Local media, n.d.).

The interviewed local journalists were: managers, editors, and reporters; 11 women and 22 men; mostly older (median age 55) and experienced (median 26 years of work as a journalist); 14 were university-educated, but none had received an education in the field of journalism (see Supplementary Material). According to a representative survey of Czech journalists (Volek & Urbániková, 2017, p. 66), in 2003 only 47.3% had a university degree, while in 2015 it was 68.1%. The share of graduates with a specialised journalism/communication degree has increased from 39.6% of all university graduates in 2003 to 53.5% in 2015. However, the authors of the study note that this "professionalisation change has been particularly pronounced in the educational structure of journalists, at the level of the youngest journalistic generation" (Volek & Urbániková, 2017, p. 66), while among local journalists and in our sample the older journalistic generation predominates. The survey authors do have regional journalists in their sample, but not local journalists from small-market outlets (Volek & Urbániková, 2017, p. 313).

The research was conducted according to the rules of the Masaryk University Research Ethics Committee. All communication partners signed an informed consent form. Their data were strictly anonymized, and they appear in the text under pseudonyms. The face-to-face interviews were in the Czech language and ranged from 40 minutes to 3.5 hours. They were recorded, transcribed verbatim, and translated. The data analysis took two cycles of coding: the primary focused on structural, descriptive, and thematic matters; the second focused on coding (Saldaña, 2009). The topics of news deserts and infrastructural changes in newspaper production were not conceptually pre-determined. It emerged during the primary coding cycle as part of the topic of the local journalists' reflections on the changing local newspapers' environment and their working conditions.

The research is part of the longitudinal research on local media in the Czech Republic, which was covered by surveys in every newsroom in 2009, 2014, and 2019, interviews in 2019 and 2020, and participant observation in 2019 and 2020 (Local media, n.d.).

4. Local News Deserts in the Czech Context

Local information in the Czech context is mostly mediated by privately owned newspapers. There are only a handful of online pure players. The rest of the local media sub-system consists of either the publishing chain, Vltava Labe Media, which covers almost every district with dailies but has a centralised structure and delocalised content (Waschková Císařová, 2017), or outlets owned by the local municipalities that mostly serve as political public relations for the ruling parties (Waschková Císařová, 2015). Considering the existence of local news deserts in Czechia there is always some type of mediated communication in the localities, but this does not mean that the audience in localities receives relevant local news. This was commented upon by the European Federation of Journalists (2019, p. 2): "Local media are in a very difficult position, leaving a big part of the citizens without real independent impartial information on local interests, which has a negative impact on participation in local debates and democracy."

There is a steady decline in the number of private local newspapers in Czechia: there were 60 local newspapers in 2009, 45 in 2014, and 30 in 2019; from 2019 at least three others have ceased publication (Local media, n.d.). These outlets meet the definition of "small-market newspapers" (Ali et al., 2018). They mostly: cover a small district; are located in a district town or the second largest town in the district (approximate population from 10 to 25 thousand); publish once a week; and have a circulation of 1,500 to 6,000 per issue. They are not part of the official organisations that audit the numbers, there is therefore no verified and publicly available data about their performance. Despite this, local newspapers still have strength in the media market: the total number of sold copies of these titles in 2019 is estimated at 190,000 per week. However, the decline in the availability of local information is not due only to the closure of local newspapers, but also to a change in their features, which became flat (see Table 1): reducing the number of pages, decreasing the variability of content, and extending the periodicity of their publication (Local media, n.d.).

The Czech local news deserts have some significant differences compared to other researched news deserts. Unlike local news deserts in the UK, where "social media are now dominant in local news and information systems," and "local newspapers are no longer perceived as 'community glue'" (Barclay et al., 2022, p. 9, 15), the emergence of the Czech local news deserts is related to the lack of local newspapers' digital transition (Waschková Císařová, 2023), centralisation of publishing chains (cf. Abernathy, 2018), and strong position of municipality press in the local communication (Waschková Císařová, 2015).

Table 1. Features of local newspapers in Czechia.

	2009	2019
Distribution area		
Municipality with extended powers	11	6
District	35	24
More districts	11	0
County	3	0
Frequency of publication		
Fortnightly	6	3
Weekly	51	25
Biweekly	3	2
Copies sold per issue*		
Up to 2,000	6	10
Up to 6,000	28	12
Up to 10,000	5	4
Up to 15,000	6	4
Up to 25,000	1	0
Type of ownership		
Self-employed owner	16	3
Corporate	44	27
Longevity of publication		
Up to 5 years	18	2
Up to 10 years	6	1
Up to 20 years	36	7
Up to 30 years	0	20

Note: * = In 2009, only 45 newspapers provided information on circulation.

5. Findings

The difference among the newspapers is not based on a different size or business model (Jenkins & Nielsen, 2018). On the contrary, all the researched local media are still based on the traditional business model (most income is from advertising, less income is from subscriptions and newspaper sales) and a traditional publishing structure (primary printed edition, secondary online presence; cf. Waschková Císařová, 2023).

I divide the local media organisations into three types according to the interviewees' reflections on their active/passive approach towards the infrastructural changes of local media publishing and their production strategies: entrepreneurial initiative, production self-sufficiency, and cooperation (Ekdale et al., 2015; Mishra & Spreitzer, 1998). There were 30 local newspapers' titles, according to my communication partners' description, eight of them belong to the active group, 17 to the neutral group, and five to the passive group.

The first type of local media can be called active. These media organisations successfully built upon the traditional business model (Jenkins & Nielsen, 2018). The communication partners' description of the specific functioning of their medium had one common denominator, an active approach. The second type of local media is neutral. Their representatives consider the tra-

ditional business model to be problematic but have no solid strategy to develop the medium. Some of the communication partners take negative infrastructural and production changes that need to be adapted to rather than actively addressed. External developments force them to constantly "deviate" from their set strategy. The third type of local media can be considered passive. They see the infrastructural and production changes as "fate," which is hard, or even impossible, to "break," and eventually leads to the end of the newspaper.

5.1. Activity/Passivity of Entrepreneurial Initiatives

The activity of local media is visible in entrepreneurial initiatives, like long-term development strategies, rather than in "fire-fighting" (Ali et al., 2018). As editor Ota from an active local medium puts it, "Rather than cut the budget, we always did something extra." The interviewees name various strategies: organising cultural and sporting events (editor Marie; manager Josef); producing and publishing thematic advertising supplements (reporter Marta); publishing locally oriented non-fiction and fiction books (editor Ota); and organising the rental and sale of local real estate (editor Artur).

For the neutral local media representatives, this initiative is more of a tactic, like responding to current developments, than a strategy. For example, as the

financial revenue from the traditional business model drops, they are forced to come up with new ideas, but they do not stabilize their income, or they are mostly considered demanding one-off events:

> I completely changed the philosophy of distribution because we still had copies left. I said, We must get the newspaper among the people. An issue cost only eight Czech crowns. We have nothing from the sale. We have made a network of collection points and we deliver the newspaper there for free. (editor Lucie)

> We do a road show for our readers every year. We look for different villages. We try not to go to the same ones every year and cooperate with local companies that support us. We tour these villages, organise a competition there, for beer and lemonade, and our partners contribute prizes, and we present the newspaper….It has a tradition going back 10 years, so it gets a response. It increases the sales, because people get to know us. (manager Anna)

Passive local newspapers were reflected by my communication partners after they stopped publishing, or were close to the end (Abernathy, 2018). The basic reason was that the equation, as formulated by manager Josef, does not exist: "I can only spend as much as I have in my pocket." These organisations have long been in debt or, for various reasons, on the verge of economic collapse. Their owners' entrepreneurial initiative can be considered active in one sustainable sense: they cover their debts from the other businesses that they own (reporter Robert; editor Jan; editor Barbora; editor Max). The interviewees reflect on the pride of the owners, who kept their problems under wraps until they could not be solved (reporter Milan; reporter Robert). Otherwise, these local media followed the gradual infrastructural changes rather than reacted to them, let alone established a tactic or strategy:

> The turning point in sales occurred five years ago, today we are almost down to a third of our highest numbers. The decline started with the internet. It destroyed it. We had a lot of competition—newspapers started up, but they never lasted, but the internet cannot be overcome. We haven't been able to balance our books for a long time….I must make money in other businesses to handle it. (editor Barbora)

5.2. Production Self-Sufficiency

The production self-sufficiency of a local newspaper can be understood as the active minimization of the risks that arise from external influences and support for the stability of the production process. In the case of traditional media, this means as little dependence on ancillary organisations (printing, distribution, and sales) as possible. As editor Marie said:

> We have our own means of distribution, and it simply wouldn't be possible without it. If I had to pay 39% of an issue to an external distributor and still wait sixty days for them to send us our money, it would destroy us.

One active group newspaper represents a special case of self-sufficiency: owning the newsroom house, having their own printing press, and doing their own distribution:

> When we had to pay for services it was a lot of money, and we were always a customer…matters were outside our control….But here the newspaper comes first….We found out that many of the other printing offices belonged to a chain, and many of the local newspapers were fooled. The chain promised them something, so they broke all the ties they had with the local printing office. The peripheral printing offices were brought to ruin and over time the chain changed its conditions and destroyed the newspapers. (editor Ota)

Neutral local newspapers are not similarly self-sufficient; nevertheless, these journalists consider self-distribution as crucial for production stability (editor Filip; reporter David; editor Dan; editor Dana). According to editor Karel: "We have about fifty points of sale to which we carry the papers ourselves, sometimes using buses." But these newspapers are only able to manage this process if the area of distribution (typically a district) is not too large and the number of distributed pieces is not too small, which is more often the case in the group of passive newspapers. Under these conditions, interviewees no longer consider self-distribution to be manageable (manager Anna; editor Cyril; manager Mirek; editor Ivo).

Passive organisations are only sporadically self-sufficient, which brings more problems than solutions. For example, they decided to keep their own distribution to save money, but they could not reasonably maintain it. Reporter Milan depicts a situation where he had a company car but was only allowed to drive a certain number of kilometres per month, which the owners calculated. He said: "However, they forgot to include my weekend trips to events. So, during distribution, on which I spent about twelve hours a week, I had to stop fifty meters from the shops to save on kilometres." Or they tried to find "non-orthodox" ways, shortcuts rather than solutions, to conduct their distribution, like getting bakers or butchers to deliver the paper with their goods (editor Barbora; manager Petr):

> We delivered the newspapers in a hearse. We didn't have a big enough car, so we went to borrow one and a colleague appeared in front of the newsroom with a

funeral car and pulled out two coffins into the street. I was in a cold sweat….We always pulled out the coffin and took the packages round to the sellers. Everyone was horrified, but we sold all the copies [laughs]. (editor Max)

5.3. Actors' Cooperation

The strategy of self-sufficiency supports the individualization of an organisation and disrupts the cooperation of the actors (Deuze & Witschge, 2018). Nevertheless, there were certain opportunities where individual local newspapers were willing to cooperate. On the level of inter-media cooperation, the active local media built a network of local newspapers, which jointly solicit advertising (editor Ota; manager Josef). Eventually, this cooperation failed, which caused the local journalists to distrust this kind of cooperation.

Nevertheless, the communication partners from the neutral media referred to stronger relationships with other local media (Hatcher & Thayer, 2017), but all of them fizzled out over time. At first, they shared their production problems with others, but later the problems outweighed the cooperation. The relationships, which were based mostly on individuals, faded away (Anderson, 2013): "Our former publisher befriended a newspaper publisher in the neighbouring district" (reporter Tom); "we knew each other even before 1989. But everything has changed. Those people are no longer there" (editor Cyril); "we know about each other, of course, but I don't even know how they're doing now. We've been in touch a lot, but completely different people are running it now" (editor Dana); and "I used to be in contact with the nearest foreign newsroom, the editor-in-chief was a friend of mine" (editor Dan).

Another reason was the lack of time to stay in touch: "I met a man from a similar newsroom in another district. We communicated for a while and then it went completely dead. When the crisis came, everyone had different worries and stopped talking to one another" (reporter Radim); and "the cooperation is rather random, because I'm not looking for it. I'm overwhelmed with work" (manager Mirek).

One more reason for failing to cooperate was the feeling in neutral newsrooms that other local newspapers were competitors, if "only a little" (Hatcher & Thayer, 2017): "They are a bit of a competition for us…so there has always been such careful cooperation. We watch each other warily" (manager Anna); "when we had distribution problems, we called each other. But they didn't like us very much because we interfered with their newspapers" (manager Ema); and as editor Dan reinforced:

> We were friends and then they surprised me. They came up with a proposal to add my newspaper to their chain. And I said, don't be angry, but I won't get involved. And they said: we'll destroy you…[laughs]. But they couldn't.

It can also be connected to cooperation on common production problems:

> We had problems with the Czech post, which was increasing the cost of distribution. I talked to my lawyer, and he said call a meeting with them, ideally after you have spoken to someone who is in the same situation. We asked how a couple of other newspapers would deal with it…and they told us there was no way of solving it. (editor Cyril)

The communication partners from the passive organisations do not consider cooperation with other newspapers to be meaningful as they had a bad experience (editor Barbora; reporter Milan) they were afraid to lose control over their own publication: "Cooperation? No, I wouldn't be able to influence it" (editor Jan), or they never actively tried collaboration (manager Petr).

Other important actors on the local level, with whom the level of (non)cooperation is crucial to the stability of local media, are ancillary organisations involved in media production. This type of cooperation is a co-dependency because for local media the production partners are essential for survival, and local production firms often depend on customers from the local area. Either way, the background of the relationship emphasizes the fragility of the media production system in the locality, which further disturbs the stability of local media.

The breaking point for the cooperation is mostly when a printing office, a distribution firm, or a newsstand stops serving the local market. This forces the newspaper to respond by either taking over the production process, as the active local media did (editor Ota; editor Marie; reporter Marta) or risk dependence on national corporations or chains, which can disrupt their economic stability (Bowd, 2009).

Neutral local media, which do not have the capacity to take over production services from local partners, emphasize that local ancillary organisations are key and maintain close relationships with them, mainly with local printing houses, newsstands, and grocery stores in villages (editor Karel; editor Filip; manager Anna). They suffer like active organisations when these businesses decline (editor Dana; manager Ema). This cooperation is therefore sometimes "at any cost." As manager Mirek said:

> We print in one of the last small newspaper printing houses in the country, but qualitatively it's a horror. I get offers from [a printing house which is part of a chain]. They do a beautiful job. But they can't swallow everything. They've already got most of it.

Or these relationships can be based on friendship rather than stable business strategies: "A local company of friends helps us with the distribution," said editor Dan.

The passive local newspapers struggle with the same obstacles regarding cooperation in distribution and sales.

But, in their more economically difficult situation, they have potentially worse consequences: "The newspaper was distributed by a company, but it was a catastrophe. I would not recommend it to anyone" (editor Max); "our problems were very much related to how the points of sale disappeared…there are only three newsagents in the town. The other copies went to petrol stations and grocery stores, which were served only by the [large distribution company]" (reporter Robert); and "it hurt us that the shops started to fall off, mainly in the villages" (editor Barbora).

The national, often monopolistic, infrastructural companies are considered by my interviewees as a threat to local media survival. Local newspapers are not, for them, respected business partners, yet they depend on them for two key components of newspaper production: distribution and sale. At the same time, local ancillary organisations can be understood as community organisations with a strong role in a community communication infrastructure (Kim & Ball-Rokeach, 2006).

Czech post, the state postal monopoly, is the only available national company that sends the newspaper to subscribers. It is considered by all the interviewees, regardless of the type of medium, as an unpredictable trap: "We have no choice, because no one else does it" (manager Ema). The interviewees complain about various serious problems. Repeated price increases are costly: "They increased the price of distribution by 50%. It's no joke for us, because that will cost me a quarter of a million more in a year!" (editor Cyril). At the same time, the service is poor (manager Anna; reporter Radim; editor Cyril; reporter Eva; editor Filip; editor Dan; editor Ivo). There were often disruptions caused by changing the issue or delivery day (manager Anna; reporter Emil; editor Ivo) or by postponing deadlines (manager Ema). This was "an obstacle" for active organisations. For neutral organisations, it was "a struggle." For passive organisations, it was a matter of survival (Anderson, 2013). As manager Petr said: "It was the Czech post alone, no one else finished us. We were in the red just on the production only." Also, editor Ota declared:

> We do everything ourselves except subscriptions, which are unfortunately in the hands of the Czech post, a terrible partner. We have quite a few subscribers, about 1,500, which is a decent figure. And someone is always calling in that they haven't received the paper. There are always some copies lost. This year, the price of subscriptions rose again, but the post couldn't tell us how much it would be until the end of the year. Then they sent a contract in which the price wasn't mentioned at all. Such a strange way to do business! But it's a monopoly….We tried to find an alternative, but it doesn't exist.

Similarly, all my communication partners point out that behind their drop in sales, there were also a declining number of selling points and the monopolization of national sellers. On top of that, these could not be substituted by the local media themselves:

> We started years ago with a significantly higher number of sold copies. Since then, 22 village stores have closed and no one in the village will stock it. (reporter Marta)

> The largest press distributor is the company owned by the largest newspaper publishers, and they favour their own titles. It is simply becoming increasingly difficult for us to find a seller who will sell our newspapers. In the big stores, no one talks to us. (editor Ivo)

There is also the problem of distribution of a subscription delivery, as editor Marie, a representative of the *active* local medium, sums up: "Distribution through large national companies destroyed one of my newspapers. We couldn't ensure that they met their contractual conditions, and they were late in giving us the money from our newspaper sales."

For neutral newspapers, the national distributors are often their only chance to handle a large distribution area or a small number of copies. They become dependent on the conditions that the monopoly company can often dictate (manager Anna; editor Cyril; manager Mirek).

Nevertheless, not every cooperation is positive for local media. The neutral organisations sometimes set up close cooperation with a local political representative (Hájek et al., 2015). This often became problematic because it can be understood as a violation of journalistic norms (editor Karel; editor Filip). The interviewees speak about "better than ordinary relationships," "financial support from municipalities" (editor Dana), and "contracts with the town hall" (editor Lucie). At the same time, the communication partners from the less economically stable neutral local media consider the municipal press a suitable collaborator (Waschková Císařová, 2015), which is in line with the relationship with local politicians: some earn extra money by publishing municipal press (editor Filip; editor Pavel) and others have created a synergy—"I have now established friendly relations with them, so they promote us and we promote them" (editor Dana).

In contrast, passive organisations, some of whom have a history of close relationships with local politicians, fought the municipal press as their strongest competitor and one of the obstacles to their production stability. For example, manager Petr sees the municipal press as "the last straw" that closed his newspaper: "All those town halls have their own press and publish with taxpayers' money. We published an independent newspaper using my money." Editor Barbora adds that the competition "is getting worse"; editor Jan adds: "The municipal press charges for advertising at a quarter of the price that we do, but you can't do anything about it because if they don't have the money, they ask the town for more."

6. Conclusions

Having analysed the stories of the interviewees, the findings confirm that an organisation's self-sufficiency and activity are better indicators of local media performance than a typology based on an organisation's size or business model. There was a factor that complicated the fulfilment of my aim—the general coverage of interviewees from all these organisations on the periphery provided a vivid overall picture that did not allow for a more nuanced look. However, it was still possible to find common features and to divide the organisations into three types, which correspond to the active/passive approach towards the infrastructural changes of local media publishing and consider the production strategies—entrepreneurial initiative, production self-sufficiency, and cooperation.

The main feature of active organisations is the long-term and difficult-to-build equilibrium, which is based on maintaining relationships with relevant local actors and avoiding the influence of monopolistic actors. However, the equilibrium is not passively received, it is repeatedly recreated. Neutral organisations are trapped in a spiral that has developed from their passive attitude towards challenges and changes and their equilibrium is disturbed. There are two sub-groups: First, there are organisations that, from the outside, could be considered active. They seem to thrive, but they cannot adapt to the changing production process. Then there are the organisations that are changing slowly with the general trends in local newspapers and approaching those we consider passive. What this group of organisations illustrate is that, regardless of their periodicity or area of publication, size does not mean success. The passive organisations either show the way in which the local newspapers' organisations decline, or they represent organisations that were never meant to thrive. They either entered the industry with an inadequate set of operating rules, or they had the necessary prerequisites but fell victim to an inability to cope with an infrastructure change. For them, not only passivity but also a lack of self-reflection played a role.

These findings suggest that local journalists are aware of the structural causes of the news deserts, the changes in the local newspapers themselves, and the publishing industry in general. They understand the growing organisational and economic problems for local newspapers and often their demise. The local news in the Czech Republic is still traditionally carried by newspapers, which depend on the traditional business model. Therefore, their economic stability and survival are based on the (non)cooperation with either ancillary organisations, both locally and nationally, or other local newspapers. Newspapers are often cornered by the demands of these external actors. Their economic stability depends on their production self-sufficiency. Nevertheless, some matters, such as selling points or subscription delivery, cannot be resolved by the newspapers' organisations themselves.

The findings lead us back to the initial question, which did not ask about the usual consequences of the emergence of local news deserts, but rather the reasons for their emergence (Abernathy, 2018; Mathews, 2022). In terms of production strategies (Jenkins & Nielsen, 2018) in the Czech local newspapers, it is clear that the crumbling infrastructure (Kim & Ball-Rokeach, 2006; Napoli et al., 2017) of local ancillary organisations, the status of the state postal monopoly, and the monopolisation of the selling points into national chains, are contributing to the emergence of local news deserts. Local newspapers can only solve such a situation to a certain extent and for a certain period of time, even the active newspapers run up against the limits of existing and surviving infrastructure.

It is, therefore, necessary to admit that there are local news deserts in the Czech Republic (cf. Abernathy, 2018; Gulyas, 2021; Napoli et al., 2018). However, Czech local newspapers still have different ways out of the stalemate of extinction: rather than passively waiting, start an active digital transition, which is still either in its infancy or rejected by local newspapers (Waschková Císařová, 2023); initiate cooperation to solve structural problems, e.g., strong competition of municipality press in the locality (Waschková Císařová, 2015); or contribute to the public discussion and, eventually, to systemic change, by elevating the importance of the survival of a local medium to the level of survival of a local grocery store, post office, or bank branch. Moreover, the difference is that the survival of local media is not just a question of the availability of local services, but above all the flourishing of local democracy (Darr et al., 2018; Hayes & Lawless, 2018).

Conflict of Interests

The author declares no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

References

Abernathy, P. (2018). *Home*. The Expanding News Desert. www.usnewsdeserts.com

Ali, C., Radcliffe, D., Schmidt, T., & Donald, R. (2018). Searching for sheboygans: On the future of small market newspapers. *Journalism*, *21*(4), 453–471.

Anderson, C. (2013). *Rebuilding the news: Metropolitan journalism in the digital age*. Temple University Press.

Barclay, S., Barnett, S., Moore, M., & Townend, J. (2022). *Local news deserts in the UK*. JRSST Charitable Trust. https://publicbenefitnews.files.wordpress.com/2022/06/local-news-deserts-in-the-uk.pdf

Bowd, K. (2009). "Did you see that in the paper?": Country newspapers and perceptions of local "ownership." *Australian Journalism Review*, *31*(1), 49–61.

Brennen, B. (2013). *Qualitative research methods for media studies*. Routledge.

Darr, J. P., Hitt, M. P., & Dunaway, J. L. (2018). Newspaper closures polarize voting behavior. *Journal of Communication*, *68*(6), 1007–1028.

Deuze, M., & Witschge, T. (2018). Beyond journalism: Theorizing the transformation of journalism. *Journalism*, *19*(2), 165–181.

Ekdale, B., Tully, M., Harmsen, S., & Singer, J. (2015). Newswork within a culture of job insecurity: Producing news amidst organizational and industry uncertainty. *Journalism Practice*, *9*(3), 383–398.

European Federation of Journalists. (2019). *Fact finding mission to the Czech Republic*. https://europeanjournalists.org/wp-content/uploads/2019/10/Czech-Republic-fact-finding-mission.pdf

Ferrucci, P., & Alaimo, K. (2020). Escaping the news desert: Nonprofit news and open-system journalism organisations. *Journalism*, *21*(4), 489–506.

Gulyas, A. (2021). Local news deserts. In D. Harte & R. Matthews (Eds.), *Reappraising local and community news in the UK* (pp. 16–28). Routledge.

Hájek, R., Vávra, J., & Svobodová, T. (2015). Threats to mutual trust: Czech local politicians and local journalists in the era of professional political communication. *Media Studies*, *6*(11), 36–50.

Hatcher, J., & Thayer, D. (2017). Assessing collaboration in one media ecosystem. *Journalism Practice*, *11*(10), 1283–1301.

Hayes, D., & Lawless, J. L. (2018). The decline of local news and its effects: New evidence from longitudinal data. *The Journal of Politics*, *80*, 332–336.

Jenkins, J., & Nielsen, R. K. (2018). *The digital transition of local news*. Reuters Institute. http://www.digitalnewsreport.org/publications/2018/digital-transition-local-news

Kim, Y., & Ball-Rokeach, S. (2006). Civic engagement from a communication infrastructure perspective. *Communication Theory*, *16*, 173–197.

Lindgren, A., Jolly, B., Sabatini, C., & Wong, C. (2019). *Good news, bad news: A snapshot of conditions at small-market newspapers in Canada*. Local News Research Project; National News Media Council. https://portal.journalism.ryerson.ca/goodnewsbadnews/wp-content/uploads/sites/17/2019/04/GoodNewsBadNews.pdf

Local media. (n.d.). *Database of the Czech local newspapers*. https://www.localmedia.cz/db/2019/

Mathews, N. (2022). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265.

Mishra, A., & Spreitzer, G. (1998). Explaining how survivors respond to downsizing: The roles of trust, empowerment, justice, and work redesign. *Academy of Management Journal*, *23*(3), 567–588.

Napoli, P., Dunham, I., & Mahone, J. (2017). *Assessing news media infrastructure: A state-level analysis*. DeWitt Wallace Center.

Napoli, P., Weber, M., McCollough, K., & Wang, Q. (2018). *Assessing local journalism: News deserts, journalism divides, and the determinants of the robustness of local news*. DeWitt Wallace Center.

Saldaña, J. (2009). *The coding manual for qualitative researchers*. SAGE.

Volek, J., & Urbániková, M. (2017). *Čeští novináři v komparativní perspektivě* [Czech journalists in comparative perspective]. Academia.

Waschková Císařová, L. (2015). Comparing Czech and Slovak council newspapers' policy and regulation development. *Media and Communication*, *3*(4), 62–75.

Waschková Císařová, L. (2017). Should we consider local newspaper chains local media? Development of the local press chain in the Czech Republic. *Mediální studia*, *11*(2), 112–128.

Waschková Císařová, L. (2023). We were innovators, but we gave up: The muted digital transition of local newspapers. *Digital Journalism*. Advance online publication. https://doi.org/10.1080/21670811.2023.2180405

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Article

Deserted Local News: Exploring News Deserts From a Journalistic Recruitment Perspective

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Abstract

An emerging body of research addresses how news deserts cause democratic deficits. This literature is mostly concerned with the closure of local news outlets. The present study was carried out in Norway, a country characterised by rich local media infrastructure. However, recruiting skilled and trained journalists to staff this infrastructure is challenging. Based on qualitative interviews with editors and journalism students (N = 21), this article explores the lack of skilled local journalists at small local newspapers, through a job attractiveness lens, and exposes how economic, geographic, and professional prestige factors contribute to labour deficits, identified as a brain drain threat in local journalism. The study expands the news desert research beyond the closure of local newspapers to encompass journalist labour deficits in an otherwise stable and diverse local media environment and discusses professional, societal, and political implications of the recruitment problem.

Keywords

brain drain; job attractiveness; journalistic recruitment; local journalism; news desert

Issue

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1. Introduction

Access to trustworthy and comprehensive news reporting sourced by professional journalists is generally held as a prerequisite for healthy local communities. However, the institution and practice of local journalism have come under severe pressure in recent years as local newspapers, historically the main providers of local news and information, face a large-scale economic crisis due to declining audiences and revenues (e.g., Nielsen, 2015). The shrinking economy has resulted in an increasing trend of cuts, consolidation, and closures of local newspaper titles in many communities (Wahl-Jorgensen, 2019) and has caused concerns about the weakening of local news infrastructure and its consequences (Napoli et al., 2017). This has been addressed in a growing body of studies on emerging news deserts, described as loc-

ales without access to updated, locally sourced news and information (Ferrier et al., 2016). Findings from news desert research demonstrate how reduced local news reporting creates opportunities for political and corporate corruption to flourish and undermine effective democratic participation (Napoli et al., 2017).

While this research has predominantly focused on newspaper closures and losses of journalist jobs, other factors that could lead to severe deficits in local news reporting, such as lack of qualified labour and recruitment problems among local newspapers, have received less attention in this line of research. As noted by Hess and McAdam (in press), small local news operations are struggling to attract journalists willing to pursue a career in local news and this resource deficit represents a considerable threat to the sustainability of the news ecology. In Norway, a country characterised by a diverse and

stable local newspaper structure, the recruitment of professional journalists has become an urgent matter among the country's many small local newspapers. The lack of qualified applicants for journalist jobs is described as acute (Silvola, 2022), suggesting that local newsrooms must hire people with no formal journalistic training "off the street." This could have severe implications for the quality and quantity of local news reporting even though the number of newspaper titles remains intact.

The present study investigates the recruitment situation among local newspapers in Norway. In response to Gulyas' (2021) call for news desert research that provides a more comprehensive analysis of the factors influencing spatial inequalities in local journalism, we explore local newspapers' attractiveness as employers and how this attractiveness—or lack thereof—influences their ability to provide a comprehensive local news service. In doing so, we take heed of Usher's (2023) observations that news deserts are not necessarily without news media or news. There is just not sufficient supply of "the news that is taken to power democracy" (Usher, 2023, p. 239). We aim to shed light on the role of job attractiveness and the recruitment of skilled local journalists for the provision of democracy empowering local news in the Norwegian context. As such, we expand the news desert research beyond the closure of local newspapers to encompass journalist labour deficits in an otherwise stable and diverse local media environment.

We explore recruitment and job attractiveness through in-depth interviews with Norwegian local newspaper editors and journalism students (*N* = 21). The study makes an empirical contribution by presenting new data on recruitment deficits in local journalism, which has hitherto received little attention in the research literature. Furthermore, the study makes a theoretical contribution by identifying job attractiveness as a salient factor influencing spatial inequalities in local journalism. Based on our findings, we posit that small local newspapers in Norway may be on the verge of a journalistic brain drain. In the next sections, we review relevant research literature and elaborate on our research method before presenting and discussing the findings.

2. Literature Review

2.1. Previous News Desert Research

The use of the term "desert" to describe local journalism supply, or lack thereof, originates from the US where there has been a sharp increase in local newspaper closures from the early 2000s and onwards. From 2004 to 2020, the US lost 2,100 newspapers, leaving at least 1,800 communities without a local news outlet (Abernathy, 2020). A growing number of news desert studies have demonstrated how reductions in news provision have a negative impact on community members' sense of community and belonging (Mathews, 2022), as well as people's engagement in local politics (e.g.,

Magasic & Hess, 2021; Miller, 2018). There are also indications that a lack of journalistic scrutiny of local public life has wider societal implications such as increased corruption (Matherly & Greenwood, 2021) and cost of municipal borrowing and spending. Moreover, the decline in local journalism is seen to disrupt the news ecosystem by bringing fewer local stories to the attention of larger national news media and audiences and increasing the risk of misinformation spreading via social media (Miller, 2018). Although social media services, such as community news groups on Facebook, local Twitter feeds, etc., could fill some of the functions of legacy news media, people tend to view these alternatives as inferior information sources as compared with local newspapers (Mathews, 2022; Olsen, 2020; Smethers et al., 2021). Consequently, when the quantity and quality of legacy news reporting are reduced, there is a considerable risk that a community becomes under-informed, under-represented, and unable to access timely local information or get adequate access to scrutiny (Howells, 2015).

News deserts have been studied in several national contexts, such as Brazil (da Silva & Pimenta, 2020), the UK (Gulyas, 2021), and Australia (Magasic & Hess, 2021). In a similar vein, deficits in local journalism have been explored through conceptual lenses such as news black holes (Howells, 2015), local media gaps (Gulyas & Baines, 2020), and news blind spots (Sjøvaag & Kvalheim, 2019). There is considerable commonality between these strands of research and their interest in structural transformations of the local news landscape that result in the declining quantity and quality of local journalism. In Norway, where this study was carried out, the concepts of blind spots and media shadows or half shadows have been applied to describe how geographies, topics, and sources are underrepresented in local news (Høst, 2016; Mathisen, 2021; Morlandstø & Mathisen, 2022; Sjøvaag & Kvalheim, 2019). Although the country has not experienced the same trend of local newspaper closures as, for example, the US (Abernathy, 2020) or England (Gulyas, 2021), and the overall journalistic coverage of Norwegian municipalities is reasonably good (Høst, 2016), local news blind spots and local newspapers' vulnerable resource situation amid the ongoing structural transformation of the news landscape is a key concern in media policy formulation (Ministry of Culture and Equality, 2017, 2018) and public discourse.

As noted by Gulyas (2021), the common denominator of news desert research is its preoccupation with spatial inequalities in the availability, access, or use of local news or media. She identifies four types of approaches to news desert research: (a) outlet-focused studies which examine variations in the availability of local media outlets between different localities, (b) content-focused studies exploring variations in local news content and the robustness of local journalism between communities, (c) media-ecology-focused research mapping both local news provision and socio-economic factors to identify well-served and

underserved local communities, and (d) case-study-focused research based on in-depth analysis of news supply development and consequences in a selected geographical area. Amid this rich and varied research, some aspects of the news desert problem remain underdeveloped. According to Usher (2023, p. 239), news desert studies have a tendency to eclipse the shortcomings of local news reporting and promote a "false nostalgia for the role of local newspapers in communities." There is thus a risk of overlooking how newspapers alone are not sufficient to power local democracy. Gulyas and Baines (2020) observe that there is a need for more research on the sustainability and resilience of local media ecosystems, as well as insight into factors that lead to local media gaps. Such factors include the attractiveness of local newspaper jobs and local newspapers' ability to recruit and retain skilled journalists. A talent shortage has been observed among local media in several countries (Borchardt et al., 2019). According to Hess and McAdam (in press), there has been a long-term denigration of journalistic careers in local news. They posit that a key challenge for the long-term sustainability of existing small news providers is the ability to attract staff to the regions.

2.2. The Attractiveness of Local Journalism Jobs in the Norwegian Context

Hess and McAdam's (in press) observations encourage several routes of inquiry into local journalism and job attractiveness such as the economy of the local news industry and the promise it holds for journalists looking for a secure job. Another key factor for job attractiveness is the prestige of local news work within the professional hierarchy of journalism, as well as tendencies of centralisation and depopulation of regions, which create challenging labour conditions for local employers in general. In the following sections, we will present relevant research literature on these job attractiveness conditions in the Norwegian local journalism context.

2.2.1. The State of the Local News Industry

Norway belongs to the democratic corporatist model in Hallin and Mancini's (2004) media system typology. This model is characterised by a historical coexistence of commercial media and media tied to organised social and political groups, and by a relatively active but legally limited role of the state. In Norway, local newspapers play a key role in this media system. This structure is embedded in the construction of the Norwegian welfare state and reinforced by the country's press subsidy system (Syvertsen et al., 2014). The network of local media has remained remarkably stable over time despite dramatic economic shifts in the industry, such as the loss of advertising revenue. From 2015 to 2019, the Norwegian newspaper industry lost 30.5% of its advertising revenue and user payment became newspapers'

main source of income (Medietilsynet, 2020). An important reason for the decline in advertising revenue is competition from Facebook and Google (Medietilsynet, 2022). The economic downturn in the news business has resulted in several rounds of downsizing and cutbacks among commercial news media in Norway and an estimated 1,500 journalists have left the field (Bjerke et al., 2019). With increasing production costs, particularly for print and distribution, the print product is becoming less profitable, posing a considerable challenge for small local newspapers which are still heavily reliant on print revenue (Medietilsynet, 2022). In a rapidly changing media landscape, where audiences and advertising are steadily migrating from print to digital platforms, this print dependency suggests that local newspapers are falling behind in the digital restructuring of their operations. Consequently, these news operations are becoming more vulnerable financially and less interesting employers for young talents who, as noted by Borchardt et al. (2019), are looking for "cool" jobs in digital media rather than old-style print-driven organisations at the local level.

2.2.2. The Prestige of Local Journalism

Regarding the prestige of local journalism and its potential impact on job attractiveness, research based on the sociology of professions framework describes how journalism constitutes a professional hierarchy, with internal cleavages and inequality (Mathisen, 2021). Inspired by Bourdieu, Hovden (2008) analyses the profession of journalism as a socially stratified field, where local journalists are placed in the sector with the lowest journalistic prestige, while those in large, national newsrooms have the highest prestige and status. Previous research in the Nordic countries has shown how these status hierarchies of the profession are well-established among journalism students in the sense that students' motivations and aspirations are directed toward the most prestigious journalistic positions (Hovden et al., 2009). Studies also show that local journalists express a feeling of inferiority and lack of professional capital compared to colleagues in larger newsrooms (Mathisen, 2021). Adding complexity to the status hierarchy of journalism, there is an ongoing discussion about de-professionalisation in (local) journalism whereby professional values and identity fade, and the profession weakens as a result of the deepening media crisis (Nygren, 2014). In both academic research and public debate, local journalism is often criticised for deferential and patriotic reporting, acting more as a guard dog for those in power than society's watchdog, the latter being one of journalism's most salient professional ideals and mythologies (Nielsen, 2015). A Danish study found that local journalism was hardly hard-hitting and investigative (Nielsen, 2015). A more recent study on local journalism in Norway found only 5% critical or investigative journalism and extensive use of "one source" news stories, indicative of superficial

journalistic investigation (Morlandstø & Mathisen, 2022). The professional hierarchy and shortcomings of local journalism identified in this research literature suggest that pursuing a career in local news is less attractive for trained journalists who are likely pulled towards larger news organisations. Local journalism is at best portrayed as a "stepping stone" or a "starting place" for a journalistic career (Hess & McAdam, in press). Consequently, small news operations may struggle not only to attract but also to retain qualified staff in a situation where, as observed by Borchardt et al. (2019), there is a talent shortage in journalism in general.

2.2.3. The Rural–Urban Transformation

When investigating the recruitment of journalists to small local newsrooms, demographic and geographic factors cannot be overlooked as an overarching structural framework that conditions job attractiveness. Norwegian society is characterised by decentralised population patterns. Maintaining sustainable rural areas is a key political goal and multiple economic incentives are in place to stimulate vibrant communities throughout the country. Nevertheless, Norwegian society has undergone significant urbanisation and centralisation over the last decades, in line with worldwide demographic trends in the "century of urbanisation (Ministry of Local Government and Regional Development, 2020). The most prominent population growth has been concentrated in compact, densely populated urban areas, while many rural municipalities have experienced a negative population growth (Andersson et al., 2019). These developments have resulted in demographic challenges such as a decreasing and ageing population and more scattered settlements in the regions as younger people are drawn to larger cities (Ministry of Local Government and Regional Development, 2020). Among Norway's 356 municipalities, 209 are defined as rural, accounting for 72% of the total national area and only 14% of the country's inhabitants (Ministry of Local Government and Regional Development, 2020). In sum, the country's population patterns mean that the supply of competent and skilled labour is limited in many Norwegian municipalities. Labour deficits are exacerbated by low unemployment rates in general (Ministry of Trade, Industry, and Fisheries, 2020). Recruitment is thus a huge challenge for rural industry and businesses as well as for the public sector and local newspapers are "competing for brains" in a tight labour market.

3. Research Questions

The foregoing literature review has described several conditions related to job attractiveness among small local newspapers. In sum, these factors could result in a labour shortage that threatens the provision of the kind of local journalism that powers democracy and contributes to healthy local communities. Importantly, there

appears to be a mismatch between the local newspapers' need for qualified journalists, on the one hand, and journalism students' career ambitions on the other. The interplay between job attractiveness factors and their implications for the provision of news and information in local communities is essentially an empirical question that has not been sufficiently answered in previous research. The present study addresses this research gap by asking how local newspaper editors in Norway experience the labour situation in terms of recruiting and retaining qualified local journalists. Furthermore, we ask what local newspaper editors and journalism students think about the attractiveness of working as a local journalist and the implications of job attractiveness for the provision of local journalism in Norway.

4. Method

To get an initial sense of the labour situation among local newspapers we conducted an expert interview with the secretary general of the Association of Norwegian Local Newspapers (Landslaget for lokalaviser [LLA]) and looked at survey data from a study on recruitment conducted by the LLA among their members. Close to 80% of all respondents (N = 61) confirmed that recruiting qualified staff had become more challenging during the last three years. Less than 20% of those who had actually recruited news workers (n = 56) were satisfied with the applications they had received in the hiring process. Based on these insights we designed an exploratory study aiming to "develop an in-depth exploration of a central phenomenon" (Creswell, 2005, p. 203), which is best achieved by a purposeful sampling strategy, where the focus is on "studying information-rich cases in depth and detail" and on "understanding and illuminating important cases rather than on generalising from a sample to a population" (Patton, 1999, p. 1197). The sample for this study consists of local newspaper editors and journalism students in Norway (N = 21). These groups represent the two main parties in local journalism recruitment: employers and potential employees with experiences, knowledge, and opinions that make them suitable information-rich sources for our study of recruitment and job attractiveness. We conducted in-depth interviews with both groups to generate qualitative data to address our exploratory research questions. The editors were recruited based on newspaper geography and size considerations. We wanted interviewees who, based on their experience and knowledge, could reflect on the recruitment situation in their own organisations as well as in the broader field of local journalism. We primarily used the LLA's member database (https://lla.no) to select these respondents. Our editor sample consists of nine editors representing newspapers scattered from the north to the south of Norway. Five of the nine newspapers under study had a total paid circulation (print and digital) of between 2,000 and 5,000. The circulation of the remaining four ranged between 5,000 and 14,500. The students were recruited from two

leading journalism education institutions in Norway (Oslo Metropolitan University and Nord University), where the two researchers behind this study are teachers. The students came from both small rural communities and larger cities. They were invited by e-mail or through their student Facebook group. All students were in their third and final year of bachelor's education.

The students were interviewed face to face in small groups of two to three students, whereas the editors were interviewed individually on Teams. The interviews lasted between 45 and 90 minutes. We used standardised, open-ended questions which facilitated faster interviews and made it easier to analyse and compare the data afterwards. The editor interviews focused on the labour situation (experiences with journalist recruitment, access to journalist competency, and possible reasons for labour shortages in local newsrooms), whereas the student interviews focused on job motivation and professional ambitions. Both groups were asked about the attractiveness of local journalism from an employee perspective as well as the consequences of labour shortages among local newspapers.

The interviews were transcribed by a research assistant and analysed in tandem by the two researchers. We analysed the data using the constant comparative approach beginning with primary-cycle coding (Tracy, 2013), which involves examining the interview transcripts line by line to identify initial patterns or themes. From this process, we were able to broadly identify what was "going on" and "why" while simultaneously keeping an eye out for "promising in vivo codes" (Tracy, 2013, p. 200) that could help us interpret our material. The analysis alternated between emergent readings of the data and the use of existing perspectives, explanations, and theories described in the literature review. This process was done individually by the two researchers. As a next step, we met to compare and discuss our interpretation of the data. In this process, the codes were refined and we identified themes through mutual agreement. The respondents were anonymised in the presentation of the findings. To keep the 21 participants apart, without compromising their anonymity, we gave each participant a code. E1–E9 refers to editor participants while S1–S12 refers to student participants. The size and composition of the sample is a limitation of the study that should not be ignored in the interpretation of findings. Despite being limited in number and thus not generalisable, the participants' in-depth qualitative accounts and their experiences offer constructive insights that are useful for developing a deeper understanding of the recruitment situation in local journalism and what role job attractiveness plays in the provision of comprehensive local news and information to local communities.

5. Findings

We organised our material according to two overarching themes related to the labour situation among the local newspapers (undersupply and exit of professional journalists) and three themes related to the attractiveness of the local journalism profession (economy, geography, and prestige). These main themes were not mutually exclusive but interrelated and sometimes overlapped in the data material. The same goes for the two themes identified regarding the consequences of the labour situation, namely newsroom capacity deficits and democracy deficits.

5.1. Undersupply and Exit of Professional Journalists

A recurring topic in the conversations with the local newspaper editors was the challenge of filling vacant journalist positions with qualified labour. The editors described recruitment processes with no trained journalists on the lists of candidates and very few applicants overall. In the words of one of the participants: "In the cases where there has been a slightly longer list of applicants, it's because we've had local applicants who cannot be hired because they have absolutely zero experience'' (E3). This undersupply of trained journalists was seen to force local newspapers to hire unqualified staff, "almost recruiting people right from the street" as described by one editor (E4), because "having somebody is better than having nobody" as noted by another (E9). Even editors who did not have first-hand experience with recruitment challenges recognised this undersupply of trained journalists in local journalism. The lack of access to qualified staff was seen to result in resource-demanding internal training processes, whereby the editors were forced to build up journalistic competency from scratch among their new hires. In the words of one of the editors: "We invest an extreme amount of time and energy in training" (E2).

Due to the recruitment challenges, employee turnover was another labour problem identified in our material. The editors described how retaining qualified staff was particularly difficult because larger and more resourceful news organisations were also looking to hire journalists and local newspapers served as a popular recruitment base. One of the editors voiced the frustration expressed by several of our interviewees, noting that once the staff they recruited had reached a certain level of expertise "they move on to larger news operations that can harvest our investments" (E3). This outflow of competence was not described as a new phenomenon but more of a labour food chain logic, whereby larger news organisations feed on the smaller ones. However, due to a recruitment boost among regional and national news media, these larger players were seen to "vacuum the labour market" (E3). Another editor noted how the undersupply of journalists had distorted the labour food chain. Local journalists that used to move on to greener pastures in a regional newspaper were seen to skip the regional level and move straight to a national outlet: "They get jobs that used to be unattainable for a younger journalist in the past—like working at the night desk in

one of the national newspapers," he said (E5). There were also some concerns regarding the failing recruitment of students to journalism education, particularly in the northern part of the country, and observations of how trained journalists chose other professions like public relations and marketing. This exodus from the profession, sometimes before the journalist career had even started, was seen to exacerbate the growing recruitment crisis among local news media.

When comparing the editors' experiences with the students' professional desires and aspirations, we find that all students planned to work in journalism in the future. However, their professional desires and aspirations were not primarily directed toward working in small local newsrooms. Asked about their professional dreams, the students mainly talked about working in large, national newsrooms, as foreign correspondents (S1, S8), as TV anchors or in other broadcast jobs (S5, S7, S8, and S12), or as feature or magazine journalists (S2). Others dreamt of being individual entrepreneurs with their own startups (S4, S10). While local journalism was not on top of most students' list of desirable future jobs, they did appreciate that small local newsrooms could offer valuable experience. As noted by one of the students: "It's a good place to start, to learn the occupation and get more experience, which is important when applying for other jobs" (S12).

5.2. Economic and Geographic Challenges for Local Journalism Recruitment

In our interview material, the local newspapers' failing capacity to recruit and retain trained journalists was often linked to economic factors, which again was seen to influence professional status. For example, local media managers discussed how the salary level among local journalists had a negative impact on recruitment. Local journalist salaries were seen to fall behind those of other professions such as teachers and nurses, making jobs in local newspapers less attractive. In the words of one of the participants: "The wage level for [local] journalists and editors is too low" (E6). The students confirmed that low wages, combined with time pressure and unsatisfying working conditions had a negative impact on the attractiveness of working in local journalism. As one participant said: "In local newsrooms, you work 24/7 and the wages are often low. You can't ignore that" (S2).

The editors described how the salary level was a result of the downturn in the local newspaper economy. "In 10 years we have lost half of our printed newspaper revenues. Of course, these things influence wage negotiations. We're unable to make the adjustments that could have brought us to a competitive wage level," said one (E3). The editors described how the recession in the newspaper industry during the second decade of the 21st century resulted in cutbacks, severance packages, and layoffs. This was seen to give the industry a doom and gloom image which reduced the sectors' attractiveness from an employment perspective. As noted by one of the editors, from around 2012 onwards the economic outlook of the local media business was very bleak: "We did not have a functional business model. So those who are 20-something today haven't really considered local journalism as a future career path at all" (E2).

Another structural factor that came up in the interviews concerned geography and the increasing tendencies of centralisation and urbanisation. The editors discussed how these trends had a negative impact on local journalism recruitment while also noting that such challenges cut across local sectors, as described in the following quote: "There's a lack of nurses and people in finance. They can't get people to work in local shops and there aren't enough waiters. There's enormous pressure in the workforce" (E2). Attracting younger people from the millennial generation was seen as particularly challenging due to work and life expectations that local newspapers could not meet. Life in a small place, far away from everything the larger cities have to offer, could easily be perceived as uneventful and restricting. In the words of one of the editors: "When you're 20-something, you want to live life to the fullest. Very few want to move back home (to where they once grew up)" (E5).

The students mostly confirmed this view. Even those who were born and grew up in small communities described how, for young adults, living in a big city with all its possibilities was more attractive than village life. When it came to nurturing friendships, finding partners, and starting a professional career, urban life was simply seen to have more to offer. One student noted: "It's more fun to live in a big city" (S11). Another described how she loved life in the capital—"I love Oslo" (S12)—and a third student described how young people "are attracted to larger cities because they want to work with something bigger. That makes it hard (for local newspapers) to compete" (S1). However, the students also discussed how, in the future, having settled down with their own families, working in a smaller place could be more appealing.

5.3. Professional Prestige Challenges for Local Journalism Recruitment

According to the interviews, the professional prestige factor played a key role in the recruitment problems among local newspapers. Both editors and students described how local journalism had a major image problem. As one of the editors put it: "There is this image of local newspapers as something dull, covering local fairs and simple stuff. It's perceived as second-rate journalism" (E7). The editors complained that local newspapers were not doing enough to change this image. Instead of promoting important, high-quality journalism, local news outlets were continuously subject to ridicule, particularly on a popular satirical Instagram account dedicated to exposing the comic shortcomings of local journalism to a national audience. In the words of one of the editors: "It looks like we're only fooling around doing soft

local news, whereas the reality is very different'' (E3). Supplementing this, another editor described working at a local newspaper as "very interesting, demanding, and rewarding" (E9). However, in the editors' opinion, these characteristics were not sufficiently communicated to the public. Consequently, local journalism was seen to maintain its low ranking in the journalistic status hierarchy.

Mirroring these observations, several of the students described how local journalism suffered from lower professional prestige and status. Among their accounts we find descriptions of local journalism as "less serious news and more bad journalism" (S12), "more rural and a lower threshold for what is newsworthy" (S1), and "more unimportant stories being told, such as 'look what Karl is doing in his garden'" (S7). These perceptions of local journalism were seen to influence the students' professional ambitions. As one student noted: "I prefer to work in a newsroom with a serious reputation, one which covers stories that matter in society" (S1). Reflecting on the potential to practise watchdog journalism in a local journalism context, the same student stated: "You can't really have a fourth estate function in a place like Steinkjer" (a small town in rural Norway). The students also described how having a university degree in journalism made them feel overqualified for a local newsroom job. As succinctly expressed in the following quote: "You don't really need a journalism education to work as a local journalist" (S3). While these accounts suggest that local journalism had a low standing among the students, there was also considerable appreciation of local journalism in the student group. Several participants emphasised the importance of local journalism, both for the well-being of local communities and for the supply of local news to the national public (S5, S6, S9, and S11). In the words of one student: "I don't want to describe local journalism as a poorer kind of journalism. It's important….It's closer to the citizens and communities" (S10).

5.4. Consequences of the Labour Situation

Turning next to the perceived consequences of the job attractiveness problems described in the previous sections, a recurring topic in our data material was newsroom capacity deficits. The editors described this as a many-faceted problem with implications for the day-to-day running of the newsroom as well as more strategic matters related to digital development and audience demands in an increasingly competitive and fast-changing media landscape. As noted by one editor: "It's extremely important for local newspapers to keep up with digital development. That's more difficult if you're not able to recruit new and young people in the newsroom," adding that, consequently, "the digital mindset which is so important for small newsrooms" could be lost, "increasing local newspapers' digital lag'' (E6). Supplementing these observations, the students described how the problem with recruiting and

retaining qualified journalists could create a negative circle whereby the lack of younger reporters resulted in content with less appeal to younger audiences, which in turn would make recruitment of younger reporters even more difficult.

Ultimately, the capacity deficits were also seen to threaten local newspapers' ability to provide the kind of journalism required to maintain a healthy local democracy. The following quote expresses this concern among the editors: "If we cannot get hold of skilled reporters, the newspaper will deteriorate, and we won't be able to cover our local community the way we should" (E7). The interview data suggests that critical and investigative local journalism was particularly vulnerable. Specifically, the lack of qualified staff was seen to exacerbate local newspapers' failing capacity to provide watchdog journalism. As one editor expressed it:

> When you have to employ people who have worked at the till in the local grocery shop or as a gym teacher, of course, there will be a long way to go before they can dip their noses into things and uncover stuff. (E3)

The editors discussed how, with fewer resources and less journalistic competency at hand, local newsrooms were more prone to fail in their social responsibility. Summing up this concern, one editor said:

> You're not able to be the watchdog you're supposed to be, you're not able to cover the breadth of your local community—to reveal shortcomings but also to display all the good things going on locally. There is a potential negative effect on democracy in that. (E1)

This was described as a threat rather than a reality in the sense that the editors emphasised how they were still doing important local news reporting. However, they feared that this would become increasingly difficult if they were not able to recruit more trained journalists. The students went even further than the editors in their assessment of the labour situation, suggesting that job attractiveness problems and the lack of qualified staff could result in newspaper closures. This, they noted, would result in "nonfunctioning local democracies" (S5) and "totally destroyed local communities" (S4).

6. Discussion and Conclusion

The state of local journalism has become an urgent matter in many Western, liberal democracies. The Norwegian case with its diverse and stable local newspaper structure may seem like an anomaly in this context. However, as demonstrated in the present study, even a country characterised by a comparatively robust backbone of local news outlets runs the risk of deterioration and deficits in the provision of local news. This problem stems not primarily from the lack of a local news infrastructure but from the lack of manpower to staff

the infrastructure with the required journalistic skills and competencies.

The way editors and journalism students describe the lack of attractiveness of local journalist jobs in this study confirms the hierarchical nature of the profession identified in previous research (Hovden, 2008; Nielsen, 2015). Extending observation by Borchardt et al. (2019) and Hess and McAdam (in press), our findings show that local journalism in Norway suffers from a severe image problem and struggles to compete with the prestigious media organisations in the big cities. For young, ambitious people who want to pursue a career at the forefront of journalism, local news appears to have too little to offer. Supplementing Borchardt et al. (2019), we also find that young journalists strive for a work–life balance which makes the 24-hour news cycle in understaffed local newsrooms less desirable. Combined with economic factors like low wages, and geographic factors such as centralisation and urbanisation (Andersson et al., 2019; Ministry of Local Government and Regional Development, 2020; Ministry of Trade, Industry, and Fisheries, 2020), the relatively low status of local journalism makes it difficult to recruit and retain skilled journalists in local newsrooms. Admittedly, this complex problem is exacerbated by the current pressure in the Norwegian labour market, where a range of sectors are competing for competency. A cooling down of the labour market could make recruitment problems less acute for local news media. However, the perceived low status of local journalism jobs is a persistent problem that makes local journalism particularly vulnerable to competency deficits in the short as well as longer time perspective.

As a result of their lack of attractiveness as employers, reinforced by structural factors like centralisation, we posit that small local newspapers in Norway could be facing a journalistic brain drain with significant repercussions for the provision of essential news and information services to local communities. The term brain drain refers to the movement of human capital where the net flow of expertise is heavily in one direction. "Brain" means any skill, competency, or attribute that is a potential asset for an organisation, whereas "drain" implies that the rate of exit of this asset is at a greater level than "normal" or than what might be desired (Giannoccolo, 2004). With fewer people coming into the profession, as noted by Borchardt et al. (2019), and many leaving, as described by Bjerke et al. (2019), the labour food chain in journalism is disrupted. While small local news media have a long history of serving as the recruitment arena for larger news outlets, our findings demonstrate how this role becomes increasingly challenging when those at the bottom of the food chain find themselves drained of "brains" that are difficult to replace. The findings regarding the brain drain threat support Nygren's (2014) observations of the ongoing de-professionalisation of journalism. When local newspapers, as described by the editors under study, are forced to hire people with little or no previous knowledge of journalism ethics, interview technique, journalistic presentation formats, etc., there is a risk of fading professional values, journalistic identity, and legitimacy. Ultimately, such de-professionalisation could harm journalistic quality, particularly the ability of local newspapers to provide a watchdog role in local communities.

As noted by Hess and McAdam (in press), this movement of human capital is the result of a symbolic degradation of local journalism that has been perpetrated by the field itself. Indeed, when the editors in our study complain that local news media do too little to promote important, high-quality journalism, they suggest that local journalism is somehow destroying itself from the inside by failing to live up to journalism's professional ideals of hard-hitting, watchdog journalism. That said, local journalism has a dual social responsibility to serve not only as society's watchdog but also as an integrative force that ties people and communities together. This role as local community glue appears to have much less impact on professional reputation and prestige. We argue that unless this integrative, social glue function of local journalism is promoted as a professional value on a par with investigative, watchdog journalism, local journalism will likely continue to struggle in competition with "big journalism."

By exposing the brain drain threat in local journalism in Norway this study adds another dimension to news desert research. When small local newspapers, as described by the participants in our study, fail to attract the competency needed to sustain a comprehensive local news service, they are unable to provide the kind of news that powers democracy (Usher, 2023). If important stories are left uncovered or not given the depth and breadth of investigation they deserve, due to lack of time and competency, this is likely to have a detrimental impact on the information flow in local communities and ultimately the knowledge provision that undergirds local democracy. Such information deficits lie at the heart of news deserts research (e.g., Howells, 2015; Magasic & Hess, 2021; Mathews, 2022; Miller, 2018). While previously this research has mainly been concerned with information deficits resulting from a collapse in the infrastructure of local newspapers, we find that local newspapers' role as democratic institutions is also threatened by profound labour problems. As such, this study demonstrates that preventing news deserts from spreading is not simply a question of saving newspapers as succinctly pointed out by Usher (2023). Avoiding news and information deficits in local communities is essentially about securing news providers that have the capacity—the brains—to deliver the kind of journalism that local communities need to be healthy and flourishing places. This, we maintain, calls for more attention to job attractiveness in local news in journalism research as well as in the industry and the media policy field.

From an industry perspective, it is particularly worrying that the students in our study perceive local journalism to provide limited opportunities for career

development. Albeit with some exceptions, the students mostly dismiss local media when talking about future employment, at least in the near future. For local news organisations seeking to attract these young journalists, it is a paradox that the competency that newspapers urgently need, like investigative reporting skills and digital capabilities, are the ones the students feel they will not be able to nurture in a local newsroom. Moving forward, closing at least some of this perception gap is a key challenge for the industry. For the media policy field, the brain drain threat identified in the current study suggests that securing an infrastructure of local news may not be sufficient to solve news desert problems. This is not to say that policy measures aimed at supporting a diverse media structure are not important contributions to tackling the market failure that otherwise threatens local news. However, to solve local journalism's prestige challenges, such infrastructure support is not enough.

While this study paints a rather gloomy picture of the recruitment situation in local journalism, it is important to emphasise that the editors interviewed expressed pride in their local news reporting and eagerness to improve the standing of local journalism. Moreover, journalism students supported "the idea" of local journalism and talked warmly about its importance to local democracy. The findings are based on a limited number of interviews in one country and do not allow generalisation beyond the specific context of this study. We call on future research to explore the journalism brain drain threat in other national contexts and encourage comparative studies in this field. There is also a need for follow-up studies on journalism education and what role such formal training plays in the prestige level of local journalism.

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Conflict of Interests

The authors declare no conflict of interests.

References

Abernathy, P. M. (2020). *News deserts and ghost newspapers: Will local news survive?* The Center for Innovation and Sustainability in Local Media. https://www.usnewsdeserts.com/wp-content/uploads/2020/06/2020_News_Deserts_and_Ghost_Newspapers.pdf

Andersson, M., Håkansson, P. G., & Thorsen, I. (2019). Centralization and urbanization tendencies in Norway. In P.G Håkansson & H. Bohman (Eds.), *Investigating spatial inequalities* (pp. 31–54). Emer-

ald Publishing. http://doi.org/10.1108/978-1-78973-941-120191003

Bjerke, P., Fonn, B. K., & Mathisen, B. R. (2019). *Journalistikk, profesjon og endring* [Journalism, profession and change]. Orkana Akademisk.

Borchardt, A., Lück, J., Kieslich, S., Scultz, T., & Simon, F. M. (2019). *Are journalists today' cole miners? The struggle for talent and diversity in modern newsrooms—A study on journalists in Germany, Sweden and the United Kingdom.* Reuters Institute. https://reutersinstitute.politics.ox.ac.uk/our-research/are-journalists-todays-coal-miners-struggle-talent-and-diversity-modern-newsrooms

Creswell, J. (2005). *Education research—Planning, conducting and evaluating quantitative and qualitative research* (2nd ed.). Pearson Merrill Prentice Hall.

da Silva, C. E. L., & Pimenta, A. (2020). Local news deserts in Brazil: Historical and contemporary perspectives. In A. Gulyas & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 44–53). Routledge. http://doi.org/10.4324/9781351239943-5

Ferrier, M., Sinha, G., & Outrich, M. (2016). Media deserts: Monitoring the changing media ecosystem. In M. Lloyd & L. A. Friedland (Eds.), *The communication crisis in America, and how to fix it* (pp. 214–232). Palgrave Macmillan. http://doi.org/10.1057/978-1-349-94925-0_14

Giannoccolo, P. (2004). *The brain drain: A survey of the literature.* SSRN. http://doi.org/10.2139/ssrn.1374329

Gulyas, A. (2021). Local news deserts. In D. Harte & R. Matthews (Eds.), *Reappraising local and community news in the UK* (pp. 16–28). Routledge. http://doi.org/10.4324/9781003173144-2

Gulyas, A., & Baines, D. (2020). Demarcating the field of local media and journalism. In A. Gulyas & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 1–21). Routledge.

Hallin, D. C., & Mancini, P. (2004). *Comparing media system: Three models of media and politics.* Cambridge University Press.

Hess, K., & McAdam, A. (in press). Degradation and "desertification" of digital news ecosystems. In S. Eldridge, J. Swart, S. Banjac, & D. Cheruiyot (Eds.), *Routledge companion to digital journalism studies.* Routledge.

Høst, S. (2016). *Blindsoner og halvskygger i det norske medielandskapet* [Blind spots and media shadows in the Norwegian media landscape]. Høgskolen i Volda.

Hovden, J. F. (2008). *Profane and sacred: A study of the Norwegian journalistic field* [Doctoral dissertation, University of Bergen]. Bergen Open Research Archive. http://hdl.handle.net/1956/2724

Hovden, J. F., Bjørnsen, G., Ottosen, R., Willig, I., & Zilliakus-Tikkanen, H. (2009). The Nordic journalists of tomorrow: An exploration of first year journalism students in Denmark, Finland, Norway and Sweden. *Nordicom Review*, *30*(1), 149–165.

Howells, R. (2015). *Journey to the centre of a news black hole: Examining the democratic deficit in a town with no newspaper* [Doctoral dissertation, Cardiff University]. ORCA. https://orca.cardiff.ac.uk/id/eprint/87313

Magasic, M., & Hess, K. (2021). Mining a news desert: The impact of a local newspaper's closure on political participation and engagement in the rural Australian town of Lightning Ridge. *Australian Journalism Review*, *43*(1), 99–114. http://dx.doi.org/10.1386/ajr_00059_7

Matherly, T., & Greenwood, B. (2021). No news is bad news: Political corruption, news deserts, and the decline of the fourth estate. *Academy of Management Proceedings*, *2021*(1), Article 10153. https://doi.org/10.5465/ambpp.2021.10153abstract

Mathews, N. (2022). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265. https://doi.org/10.1177/1464884920957885

Mathisen, B. R. (2021). Sourcing practice in local media: Diversity and media shadows. *Journalism Practice*, *17*(4), 647–663. https://doi.org/10.1080/17512786.2021.1942147

Medietilsynet. (2020). *Medieøkonomi: Økonomien i norske aviser 2015–2019* [Media economy: The economy of Norwegian newspapers 2015–2019]. https://www.medietilsynet.no/globalassets/publikasjoner/2020/2019---total-okonomirapprt-norske-medier-2015---2019.pdf

Medietilsynet. (2022). *Medieøkonomi: Økonomien i norske aviser 2017–2021* [Media economy: The economy of Norwegian newspapers 2017–2021]. https://www.medietilsynet.no/globalassets/publikasjoner/medieokonomi/avisenes_okonomi_2017-2021.pdf

Miller, J. (2018). News deserts: No news is bad news. In Manhattan Institute for Policy Research (Ed.), *Urban policy 2018* (pp. 59–76). Manhattan Institute for Policy Research. https://media4.manhattan-institute.org/sites/default/files/MI_Urban_Policy_2018.pdf#page=71

Ministry of Culture and Equality. (2017). *Det norske mediemangfoldet—En styrket mediepolitikk for borgerne* [Norwegian media diversity—A strengthened media policy for citizens] (NOU Report No. 2017: 7). https://www.regjeringen.no/contentassets/1e0e03eacdad4c2f865b3bc208e6c006/no/pdfs/nou201720170007000dddpdfs.pdf

Ministry of Culture and Equality. (2018). *Meld. St. 17 (2018–2019): Mangfald og armlengds avstand—Mediepolitikk for ei ny tid* [Diversity and arm's length distance—Media policy for a new era]. https://www.regjeringen.no/contentassets/7dec1c0ee86149bda8f69b256beaa202/nn-no/pdfs/stm201820190017000dddpdfs.pdf

Ministry of Local Government and Regional Development. (2020). *Det handler om Norge: Bærekraft i hele landet. Utredning om konsekvenser av demografiutfordringer i distriktene* [It's about Norway: Sustainability in the entire country. Investigating consequences of demographic challenges in rural areas] (NOU Report No. 2020: 15). https://www.regjeringen.no/contentassets/3b37c1baa63a46989cb558a65fccf7a1/no/pdfs/nou202020200015000dddpdfs.pdf

Ministry of Trade, Industry, and Fisheries. (2020). *Næringslivets betydning for levende og bærekraftige lokalsamfunn* [The importance of business for vibrant and sustainable local communities] (NOU Report No. 2020: 12). https://www.regjeringen.no/contentassets/6e57b898abea46f1bde2108f82ce1796/no/pdfs/nou202020200012000dddpdfs.pdf

Morlandstø, L., & Mathisen, B. R. (2022). Blind spots and diversity in a local media landscape. *Journalism*. Advance online publication. https://doi.org/10.1177/14648849221119603

Napoli, P. M., Dunham, I., Mahone, J., & Fund, D. (2017). *Assessing news media infrastructure: A state-level analysis*. DeWitt Wallace Center for Media & Democracy. http://dewitt.sanford.duke.edu/wp-content/uploads/sites/3/2017/05/Assessing-News-Media-Infrastructure_Report-2.pdf

Nielsen, R. K. (Ed.). (2015). *Local journalism: The decline of newspapers and the rise of digital media*. Bloomsbury.

Nygren, G. (2014). Multiskilling in the newsroom—De-skilling or re-skilling of journalistic work? *The Journal of Media Innovations*, *1*(2), 75–96.

Olsen, R. K. (2020). Understanding the relationship people in their early adulthood have to small-town news and paywalls. *Journalism*, *21*(4), 507–523. https://doi.org/10.1177/1464884919886438

Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health Services Research*, *34*(5), 1189–1208. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1089059

Silvola, N. M. (2022, April 12). LLA-sjefen slår alarm: Situasjonen kan bli kritisk for lokalavisene [LLA boss sounds the alarm: The situation could become critical for local newspapers]. *Journalisten*. https://journalisten.no/innovasjonsstotte-kortnytt-lla/lla-sjefen-slar-alarm-situasjonen-kan-bli-kritisk-for-lokalavisene/513445

Sjøvaag, H., & Kvalheim, N. (2019). Eventless news: Blind-spots in journalism and the "long tail" of news content. *Journal of Applied Journalism & Media Studies*, *8*(3), 291–310. https://doi.org/10.1386/ajms_00003_1

Smethers, J. S., Mwangi, S. C., & Bressers, B. (2021). Signal interruption in Baldwin City: Filling a communication vacuum in a small town "news desert." *Newspaper Research Journal*, *42*(3), 379–396. https://doi.org/10.1177/07395329211030687

Syvertsen, T., Enli, G., Mjøs, O. J., & Moe, H. (2014). *The media welfare state: Nordic media in the digital era*.

The University of Michigan Press.

Tracy, S. J. (2013). *Qualitative research methods*. Wiley.

Usher, N. (2023). The real problems with the problem of news deserts: Toward rooting place, precision and positionality in scholarship on local news and democracy. *Political Communication*, *40*(2), 238–253. https://doi.org/10.1080/10584609.2023.2175399

Wahl-Jorgensen, K. (2019). The challenge of local news provision. *Journalism*, *20*(1), 163–166. http://dx.doi.org/10.1177/1464884918809281

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Commentary

Local Journalism With State Support

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Abstract
In Sweden, the system of press subsidies was expanded in 2019 to give special support for "weakly covered areas." This new support has had positive effects, but changes in the system also introduced new demands on the content concerning democratic values etc. If state support should be used for saving local journalism, how far can state influence on the content be acceptable for independent local media? The commentary describes the system of support and discusses this crucial question.

Keywords
local journalism; news deserts; political influence; press subsidies; state support; Sweden

Issue
This commentary is part of the issue "News Deserts: Places and Spaces Without News" edited by Agnes Gulyas (Canterbury Christ Church University), Joy Jenkins (University of Missouri), and Annika Bergström (University of Gothenburg).

Can anything be done about news deserts? Researchers the world over have described the decline of local journalism (Harte et al., 2019; Nielsen, 2015). But can research also go a step further and be part of a change in the opposite direction—to help strengthen local journalism? Experiences from Sweden give some clues about both the opportunities and the limitations when it comes to support for local journalism (mostly in some form of state subsidies). The following commentary is based on my experiences as both a researcher and a member of the state board that decides on financial support for the media (Mediestödsnämnden). The conclusions and the questions raised are mine alone. I hope they can contribute to the future discussion about news deserts.

In Sweden, local media has faced the same development as in the rest of the Western world—a decline in circulation and advertising revenues, a concentration in ownership, and centralized production. Very few titles have shut down completely, but newspapers are now less local; every second local newsroom in the local and regional newspapers was closed during the 12-year period of 2004–2016 (Nygren et al., 2018). The Swedish press has had a strong local focus; there are only two tabloids that can be considered national newspapers. However, there are now only five major groups that

own the 83 daily Swedish newspapers (at least two days/week).

An important difference between Sweden and most Western countries when it comes to the media is that Sweden has a system of state subsidies for newspapers. This system was introduced in 1971 to support diversity in the media, and the subsidies have gone mainly to the second-largest newspaper in various markets as compensation for lower advertising revenue (Gustafsson & Rydén, 2010; Nygren, 2021). Swedish public service radio and TV have gradually developed regional newsrooms that produce and publish news 24/7 (broadcast and online). In the 1990s, local commercial broadcasts were introduced, but these were no commercial success. There is currently no local news being broadcast in commercial broadcasting (Nygren, 2019).

So, what happened when the political system realized that the local and regional media systems were in a crisis? The first figures indicating the decline were published in a report (Nygren & Althén, 2014). This started the debate and was one of the reasons the minister of culture appointed an inquiry into state media policy. It was clear that the political system saw both that the digital transformation was changing the playing field for the media and the consequences of this change. A state inquiry was appointed to find possible

solutions. One of the proposals from the inquiry was a new type of media support for "weakly covered areas" (Kulturdepartementet, 2016, p. 362). This support would be defined in state regulations, and it would introduce new approaches in several dimensions:

- The starting point would be the citizens' need for information—not the media's need.
- The support would be platform-independent (paper, online, or broadcast).
- The support would be available to all media sources—both large actors and hyperlocals—that cover local issues in an area.

Since 2019, the state authority for media support has earmarked about EUR 50 million for local journalism support. As a result, the decline in the number of local newsrooms has stopped, and new local journalists have been hired in many areas (Mediestudier, 2023). Most of the support has gone to the large newspaper groups, but hyperlocals such as freesheets and local news sites have also received support. Geographically, the support has gone to small towns and rural areas but also to freesheets in suburbs of large cities.

This support for "weakly covered areas" is only a minor part of the state subsidies to commercial news media, which have a total budget of around EUR 100 million/year. It is largely distributed to around 75 newspapers (most of them local) as general support for daily operations (The Swedish Press and Broadcasting Authority, 2023).

In a parallel development, public service radio and TV have also become more local. New resources have been dedicated to local news, new newsrooms, and local online news that are available to all citizens. Public service radio and TV now have 45–50 local newsrooms each and plan to expand more. Public service online news is often text-based, and commercial newspapers criticize this competition from tax-funded media. Newspapers are increasingly financed by subscriptions (paywalls online), although public service media offers news for free. The cost for all public service in Sweden is about 6–7 times the amount of state media support that has been dedicated to newspapers and local news. A state inquiry is now considering this issue before a new agreement between the state and public service media goes into effect in 2026.

Also, when it comes to direct state support for commercial local journalism, this will change once more in 2024. General support in the future will focus on regional and local media, and it will be available for all media (except public service) that cover local and regional issues. It will also be possible to receive extra support for "blind spots," where coverage is low (Kulturdepartementet, 2022).

There is one important difference between the new and the old type of media support. Under the old system, the support was estimated from strict figures on circulation and subscriptions in households. Newspapers were entitled to receive support if they met several clear qualifications. Under the new system, the support will be based on editorial costs and distributed according to "budget space." There are also quality demands that are still not defined in detail. This could introduce a degree of arbitrariness into decisions. How much, though, will only become evident in the future.

Given this long background, I would like to discuss some basic questions about news deserts, the role of the media market in relation to the state, and the role of media research.

Hallin and Mancini (2004) have labelled the Swedish media system *democratic-corporatist*. The state supports the media structure with strong public service and direct media support. At the same time, there is a strong degree of professionalization in Swedish journalism, and the media takes a social responsibility. The Swedish political system supports the media but also gives it a large degree of freedom within the system.

The local journalism crisis in Sweden is a result of a market failure. When the market could no longer sustain local journalism, the political system reacted and created a system of support for the local media structure. The role of public service in local and regional journalism has also expanded at the same time as new types of media support are becoming less automated. There are new rules specifying the types of content that will disqualify the media from receiving support—such as unethical publishing and content based on falsification. This has caused a discussion about how much the state may try to influence the content of news, and in the most recent proposals, these new rules have been reduced in favour of more general paragraphs on democracy. The new wording specifies t hat support can be given to media sources that do not oppose the basic tenets of democratic governance and respect that all individuals have equal value.

Questions also arise as media support shifts from being a right as long as certain demands concerning circulation, etc., were met to being subject to more arbitrary considerations. Broader groups of media will now be able to receive support, but for how long? The support for the media is also more dependent now on potential budget issues within the government. It will be easier to lower the media support when the budget shrinks.

As a media researcher, I have participated in this development by providing background information and research for different state inquiries. I have also been appointed by the government since 2019 to be part of the board that decides on support to commercial media (together with other experts and politicians). The basic question for me has been how society can support local journalism when there is a market failure; the citizens' need for local journalism is not being met. At the same time, how can this support be regulated without the state interfering in the content? Can the state be a benefactor of local journalism without regulating content?

There is a general European trend of politization in the media system, and this trend is most visible in countries like Poland and Hungary. There is also political pressure on public service in Western Europe, which often focuses on the relationship to commercial media. In Sweden, media policy has been an area of political consensus for a long time. The old system of media support existed basically unchanged for 50 years, but the political polarization over the past few years has influenced this political field and introduced strong criticism of public service from right-wing parties. Distrust of the mainstream media is spreading among supporters of these parties (Andersson & Weibull, 2017).

The market failure forces local media to look for other kinds of financing. The long tradition of state support for the media sector offers an opportunity to develop a new type of state support to avoid growing news deserts. The political system has decided to support the democratic infrastructure in the form of independent and active local media. However, the state is balancing on a thin line and could start to incorporate new demands on content. If this were to happen, we would need to question to what extent local media is still independent.

With this said, though, if the choice comes down to media deserts or state subsidies for local media, the answer for me seems obvious. With a clear understanding of the risks. The final question is whether a researcher should take part in creating solutions? The traditional role of a researcher is to stand beside, to criticize, and to create new knowledge. Not to be an actor in media development.

There is no answer to this question valid for all researchers. Each must decide for themselves. For me, it has been important that research in academia also reaches the field—those working in the media. The next step is close, to use the knowledge to influence media development in favour of democracy and society. From my perspective, local journalism is too important to stand beside and only watch and comment.

Conflict of Interests

The author declares no conflict of interests.

References

Andersson, U., & Weibull, L. (2017). Har svenskarna förtroende för medierna? [Do the Swedes trust the media?]. In L. Truedson (Ed.), *Misstron mot medier* [Distrust towards media] (pp. 51–83). Institutet för mediestudier.

Gustafsson, K. E., & Rydén, P. (2010). *A history of the press in Sweden*. Nordicom.

Hallin, D., & Mancini, P. (2004). *Comparing media systems: Three models of media and politics*. Cambridge University Press.

Harte, D., Howells, R., & Williams, A. (2019). *Hyperlocal journalism: The decline of local newspapers and the rise of online community news*. Routledge.

Kulturdepartementet. (2016). *En gränsöverskridande mediepolitik. För upplysning, engagemang och ansvar* [A media policy crossing borders. For enlightenment, engagement and responsibility] (SOU 2016:80). Regeringskansliet. https://www.regeringen.se/rattsliga-dokument/statens-offentliga-utredningar/2016/11/sou-201680

Kulturdepartementet. (2022). *Ett hållbart mediestöd för hela landet* [A sustainable media support for the whole country] (Ds 2022:14). Regeringskansliet. http://www.regeringen.se/rattsliga-dokument/departementsserien-och-promemorior/2022/06/ds-202214

Mediestudier. (2023). *Databas om lokala medier i Sverige* [A database on local media in Sweden]. https://kommundatabas.mediestudier.se

Nielsen, R. K. (Ed.). (2015). *Local journalism: The decline of newspapers and the rise of digital media*. IB Tauris.

Nygren, G. (2019). Local media ecologies: Social media talking the lead. *Nordicom Review*, *40*(2), 51–67. https://doi.org/10.2478/nor-2019-0026

Nygren, G. (2021). Ett nytt mediestöd utan politisk styrning [A new media support without political influence]. In L. Truedson (Ed.), *Snigeln och haren—Så kan mediepolitiken komma ifatt medieutvecklingen* [The snail and the hare—So can media policy catch up with media developent] (pp. 140–154). Institutet för mediestudier.

Nygren, G., & Althén, K. (2014). *Landsbygd i medieskugga* [Countryside in media shadow]. Södertörns högskola.

Nygren, G., Leckner, S., & Tenor, C. (2018). Hyperlocals and legacy media. Media ecologies in transition. *Nordicom Review*, *39*(1), 33–49.

The Swedish Press and Broadcasting Authority. (2023). *Subsidies to media*. https://www.mprt.se/en/subsidies-to-media

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Article

Examining the Social, Civic, and Political Impact of Local Newspaper Closure in Outback Australia

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Abstract

Scholars across the globe have focused intently on mapping news deserts and gaps where public interest journalism is lacking or in peril. However, little attention is paid to understanding the impacts and changing media-related practices of people who live in communities that lose a designated news service—notably a local newspaper. This article draws on a focused ethnographic study of a small outback mining town, Lightning Ridge (population 2,284), in central New South Wales, Australia. The research was conducted over a two-month period and involved participant observation, 31 interviews with residents and relevant stakeholders, and examination of several media platforms relevant to the town. The article begins with an overview of Australian policy interventions to address the decline of public interest journalism. It then discusses the impact of a local newspaper's closure via three themes—social, civic, and political. This is important because much of the policy focus in Australia is on the threat "news gaps" present to democracy. However, it is also necessary to understand the nuances of local media's role in shaping everyday social connections and ritualistic practices and elevating issues to local networks of power. The article concludes by considering how current policy interventions can learn from failed attempts to fill the news gap in Lightning Ridge.

Keywords

local journalism; local newspapers; news gaps; news deserts; rural media

1. Introduction

For more than a decade, Australian local news outlets have grappled with the transition into digital spaces and battled the loss of advertising revenue (Abernathy, 2018), exacerbated by the Covid-19 pandemic (Hess & Waller, 2021). This has concerned academics, industry leaders, and policymakers alike because news and journalism occupy important places in democratic societies. The ongoing closures of local newsrooms have created what has been coined "news gaps" in many communities, where residents are left with sparse or no media spaces for local news (Gulyas, 2021). However, there is little research that comprehensively examines the impact of news closures on regional or rural communities, espe-

cially in Australia. This article draws on data gathered during a focused ethnography in the small Australian opal mining town of Lightning Ridge in outback New South Wales, which in 2015 lost its local newspaper, *The Ridge News*. *The Ridge News* was one of 106 local and regional newspapers that shut down between 2008 and 2018 because of economic challenges faced by its parent company Fairfax Media (Public Interest Journalism Initiative, 2020). However, there has been little research that has examined everyday media practices in areas that have been deprived of public interest journalism.

This article divides its findings into three themes: political, social, and civic. While these terms are often used interchangeably—see Putnam's (1995) use of the terms social capital and civic, for example—in this article

they are unpacked to explore the nuances of how a newspaper's closure impacts people's lived experiences. The article begins with an overview of scholarship on news gaps, before outlining changes across the Australian local news landscape. It then explores Lightning Ridge's current media ecology to determine how residents receive their local news and information in the absence of a newspaper. It also discusses how people have attempted to replace *The Ridge News* during this time and the challenges that have prohibited their success such as time, resources, and journalistic experience. The article then shifts to examine the political functions of local news and its role in informing citizens about governmental institutions and affairs (McNair, 2012). This is followed by the impact within the broader social sphere, notably the loss of ritualistic practices that bind people together through a sense of community (Hess & Gutsche, 2018). Finally, we explore the civic impact through the lens of Dahlgren's (2003) civic culture, with a particular focus on how information sharing generates civic engagement at the intersection of political and social life.

1.1. Studying News Gaps

In this study, "news gaps" are defined as geographic areas where no professional journalists work to provide relevant, quality, and accurate information. While there is early literature on this phenomenon (Berelson, 1949), news gaps became of serious concern when the mass closure of newspapers threatened democratic models across the globe. Since then, they have been referred to as "news gaps," "news deserts," or "news deficits" (Barnett & Townend, 2014; Ferrier, 2014; Gulyas, 2021; Howells, 2015). However, there has been a lack of conceptualisation around news gaps, with the term largely used as a descriptor of poor information provisions. Ferrier (2014) for example, uses "news desert" to describe the lack of news in a community information ecosystem. However, she also uses "media deserts" to highlight a larger framework and delivery of content such as news, information, and conversation. Barnett and Townend (2014) and Howells (2015) position a "news gap" as populations being left with little information about their local communities, either in towns or cities with severely reduced journalistic presence. Gulyas (2021) summarises this as the diminished availability, access, or use of local news or media in a community in a geographical area. Furthermore, the platforms and practices that may step in to provide local news beyond traditional news outlets warrant consideration when assessing the full impacts of news gaps. This assists with understanding the challenges presented by people who seek to fill the void with alternate media (Barnett & Townend, 2014; Magasic & Hess, 2021).

Efforts have been undertaken across the globe to identify and map news gaps across rural regions where communities more heavily rely on local newspapers (Gulyas, 2021). In the US, more than 24,000 journalist jobs and 60 local newspapers were lost during the Covid-19 pandemic (Claussen, 2020; Hare, 2021). Preceding this, The Media Deserts Project (see http://www.mediadeserts.com) was created to provide an interactive map that showcases areas lacking access to local news and information (Ferrier, 2018). In Canada, newspaper closures are tracked by the Local News Research Project. It found that approximately 215 newspapers closed between 2008 and 2020, and another 28 closed in the first four months of 2020 (Lindgren et al., 2020). Meanwhile, the Centre for the Study of Journalism, Culture and Community in the UK found more than 200 local newspapers closed since 2005, with many others reducing the number of issues printed (Ramsay et al., 2017). Once again, the Covid-19 pandemic forced the closure of several more (Evans, 2020). However, these studies lack a detailed exploration of the effects of local news closures on people's lived experiences.

1.1.1. The Australian Context

The Covid-19 pandemic also exacerbated the dire media landscape in Australia. From April 2020 dozens of local and suburban newspapers closed (some temporarily), unable to remain viable without advertising revenue (Dickson, 2020). Australia's two biggest newspaper publishers, News Corp and Nine, stopped or suspended the printing of more than 100 local newspapers (Dickson, 2020). This followed a 10-year period from 2008 to 2018 when 106 local and regional newspaper titles closed across the country (Public Interest Journalism Initiative, 2020). These closures left 21 of Australia's 537 local government areas without local newspaper coverage. Of these 21 local government areas, 16 were in regional Australia (Dickson, 2020). This includes the newspaper at the centre of this study, *The Ridge News*, which was operated by the now-defunct Fairfax Media. The newspapers that survived the transition to the digital era and the Covid-19 pandemic also had to contend with rising production overheads. In 2022, rising freight and energy costs along with paper supply issues led industry leaders to speculate that production costs could nearly double for some local newspapers (Young, 2022).

The Australian policy response to this economic situation has lacked a cohesive strategy. The first initiative was rolled out in 2018. The AU$60.4 million package of subsidies, grants, and scholarships was designed to support local journalism projects, hire cadets, and fund digital innovation (Department of Infrastructure, Transport, Regional Development, Communications and the Arts, 2021). Eligible publications had an annual turnover of between AU$150,000 and AU$30 million and were unaffiliated with a political party or lobby group. It funded 200 cadetships and 60 regional journalism scholarships but was criticised for not addressing news sustainability or assisting publications making below the required turnover (Hess & Waller, 2020).

Another government attempt to raise funding was to force companies such as Facebook and Google to pay legacy media companies for news searched through their services (referred to as the Mandatory Bargaining Code). In response, Facebook temporarily blocked users from sharing and posting news, which forced the Australian Government to renegotiate the legislation (Snape, 2021). The bill was legislated in February 2021, with media companies negotiating confidential payments from the social media giants to compensate for the news people search and share online. These conditions favour Australia's big media companies because it is only available to established publications with annual revenue above AU$150,000 (Snape, 2021). While the long-term impacts of these initiatives on local news are unknown, they have so far failed to prevent further closures of rural news services. This makes it important to interrogate what the consequences are for communities that are left in a news gap.

2. Understanding the Impacts of News Gaps

This article views the impact of a newspaper's closure through the prism of three key themes: political, social, and civic. This is necessary to provide fine-grained insight into the various roles a local news outlet has in a community to encourage evidence-based interventions among policymakers and those interested in investing in local news ecosystems.

2.1. The Political

Political impact refers to actions that influence government decisions and political outcomes (Ekman & Amnå, 2022, p. 384). Here, political practices relate directly to government institutions like parliaments, police and courts, the people elected to and employed by them, and the prescribed channels for engaging with them. These channels can include voting, writing to elected representatives, or signing petitions to enact political change. Through its fourth estate function within the public sphere, the media scrutinises powerful institutions through an objective and balanced account of issues and political affairs (Nielsen, 2015). Nielsen (2015, p. 9) contends that journalists see this as their most important role in a liberal representative democracy. On a local level, without local news, constituents may feel unrepresented and trust in local government diminishes (Freeman & Hutchins, 2016). Howells (2015, p. 80) describes the reduction in political engagement experienced in a news gap as a "democratic deficit," which is characterised by "the inability of the people either to give their mandate, or to have their will carried out." In rural and metropolitan contexts alike, local newspapers with reduced financial resources lead to fewer local journalists being hired to report on politics. With smaller budgets, the news they produce is not of sufficient quality and quantity to perform the fourth estate function

(Carson et al., 2016). Carson et al. (2016, p. 132) write that publications increasingly depend on official sources rather than "shoe leather" journalism.

Because of the emphasis on journalism's political functions, studies that do examine the impact of news gaps mostly focus on measuring voter turnout and knowledge of political issues (Hayes & Lawless, 2015, 2018). Hayes and Lawless (2018) for example, analyse more than 10,000 stories about US House campaigns in 2010 and 2014 to link a decline in the volume of political news to reductions in citizens' political knowledge and voter turnout. Howells (2015), meanwhile, combines content analysis, interviews, and focus groups to argue that when a Welsh local newspaper shut down the town's residents lost an outlet to have their mandate heard and felt uninformed about local political news, which is corroborated in this article.

2.2. The Social

While the public sphere is associated with how people engage politically, it is one aspect of the broader social sphere (Hess & Gutsche, 2018). Hess and Gutsche (2018) argue journalism scholarship on the "social" is at times overshadowed by research on the role of social media, at the expense of fully extrapolating news media's social function. They build on Durkheim (1982), who defines the social as the conventions and rules that exist outside of legal and political institutions that bind people into a society (Durkheim, 1982, p. 50). It is from this that local media shape rituals and practices that bind people together and connect them with each other (Bowd, 2011). These rituals and practices can be banal like meeting people at the news agency to buy the weekly paper, or to do with life and death rituals such as placing a death notice in the classifieds (Couldry, 2003; Hess, 2016b).

In the digital era, local newspapers still construct social conventions in the rural and regional towns they operate (Hess & Gutsche, 2018). Ali et al. (2018), for example, list the local newspaper's functions that fall outside its democratic roles such as acting as the symbolic community centre, telling the community about itself, and setting standards and norms. Without a local newspaper performing these roles, people perceive their community as weaker because they are disconnected from their peers and neighbours (Mathews, 2020).

2.3. The Civic

While the civic is often associated with the political (Hess, 2016a; Putnam, 1995), it intersects with social and cultural elements and creates the foundation for political participation to occur (Ekman & Amnå, 2012). Ekman and Amnå (2012), for example, list volunteering to improve conditions in the local community as civic engagement because volunteers are needed to plug the gap that government services cannot fill. The authors also use legal and illegal protests to distinguish the civic

from the political. While a legal protest is a political act because it exists within the confines of the law and other governmental structures, illegal protests are born from communities and movements that exist adjacent to these institutions (Ekman & Amnå, 2012). Journalism scholars have also used the term "civic" to describe participating in politics, a person's duty to society, or furthering the common good (Ekman & Amnå, 2012). The cultural shift in media studies, meanwhile, also adopts the "hunch" that studying people's conversations and practices can tell us much about civic participation (Hess, 2016a). Dahlgren (2003) views the civic as a social storehouse that is drawn upon to enact political participation. The media's role in Dahlgren's (2003) concept of civic culture is central to understanding the impacts of news gaps in this article. For a civic culture to exist people need a shared identity and set of values and to share a historic precedent of action. Binding these all together is a shared source of information. News or information shared through local newspapers or other media can instigate a population to sign petitions, fundraise, or protest (Dahlgren, 2003). In the sections that follow, we will provide an overview of Lightning Ridge's existing information ecosystem, before outlining the methods adopted to explore the political, social, and civic impact of *The Ridge News*' closure.

3. Lightning Ridge's Information Ecosystem

Lightning Ridge is a remote town in outback New South Wales, approximately nine hour's drive from both Sydney and Brisbane (715 km and 721 km, respectively) and located near the Queensland border. It is the only place in the world where black opal is mined and many people live in the surrounding opal fields. While the population was recorded as 2,284 in the 2016 census, it can swell to 5,000 during the milder months of winter when people return to mine opal (Australian Bureau of Statistics, 2016; Moritz & Thompson, 2009). Lightning Ridge's newspaper, *The Ridge News*, started in 1991 as an independently-owned weekly publication before being bought by Rural Press in 1995 and then sold to media giant Fairfax in 2006. Like many local newspapers across Australia, it was shut down in 2015 as the company undertook a major restructuring effort.

During fieldwork Lightning Ridge residents expressed that there was still strong demand for a local newspaper and a need for a dedicated and independent local news service. There have also been attempts at replacing *The Ridge News*. However, these attempts have either failed or do not adequately fill the gap left by *The Ridge News*. One example was a short-lived A4 newsletter that generated revenue through a cover charge and advertising space. The owner launched it the year after *The Ridge News* shut down and printed it from their garage before distributing it to various shops and sometimes selling them door-to-door. The owner did not have journalistic experience and the newsletter eventually

folded because of economic reasons, notably the lack of time needed to produce a regular publication. Lightning Ridge residents also have access to several Facebook pages that circulate information. This includes one titled The Northwest News which was also started to fill the void left by *The Ridge News*. It is operated by a local woman who balances family life with working at the local school and other volunteering commitments. She started the Facebook page to bring together the information she wanted to know but could not find in one convenient location. However, again because of time constraints she mostly collects and shares press releases relevant to Lightning Ridge. This means that while the Facebook page is somewhat useful to Lightning Ridge residents, it does not adequately provide original news content. Compounding this problem is the fact that like other remote Australian towns (Freeman & Hutchins, 2016), Lightning Ridge's isolation and distance from capital cities means digital connectivity is poor and use of the internet is low, particularly among the town's older population. Only 57% of Lightning Ridge homes are connected to the internet and approximately 44% of residents are aged over 55. The national averages are 82.5% and 28%, respectively (Australian Bureau of Statistics, 2016).

Along with Facebook pages, Lightning Ridge residents make use of passing on local news via word of mouth and through flyers and notice boards found around town. While typical in small towns, these two methods have significant drawbacks. Word of mouth is only effective for residents who can rely on their personal connections. This meant information would not travel on the grapevine to people who had just moved to town or did not hold prominent positions. The flyers pinned up around town and on notice boards mostly provided a classifieds service. They were put up at the whims of residents, so the information was not timely and sometimes out of date. Older residents confined to their homes also found it difficult to travel into town to read them. Furthermore, residents do not have access to a relevant local TV news service and the community radio station plays a regional bulletin produced in Bathurst, approximately 550 km from Lightning Ridge.

While *The Ridge News* was the community's only reliable and dedicated local news service, it is important not to glorify the publication as a shining example of public interest journalism—it consisted of six pages of news, produced by one journalist. The journalist was unable to attend council meetings and news coverage subsequently relied heavily on press releases. Regardless, fieldwork revealed that the local newspaper was an indispensable tool for spreading social and political news, something the other communication channels have not replicated.

4. Methods

A two-month focused ethnography was undertaken in Lightning Ridge between July and September 2019 (Knoblauch, 2005; Maggs-Rapport, 2000). Focused

ethnographies are grounded in phenomenology and make use of the participants' and researchers' individual experiences. Like traditional ethnographies, focused ethnographies capture the social meaning and cultural context. However, they are guided by research questions and examine niche issues rather than capturing the workings of an entire culture or society (Knoblauch, 2005; Maggs-Rapport, 2000). The research questions that guided this study were:

- What social, cultural, and political impact does a local newspaper's closure in rural Australia have within the geographic spaces it once served?
- What communications channels replace the loss of a local news outlet and what do people's media-related practices tell us about their effectiveness in providing local news and information?

In focused ethnographies, the researcher actively participates and engages within the setting to gain a similar shared experience to those they are studying. This is different to traditional ethnographies, where the researcher does not have an active role in meaning-making and knowledge creation and more commonly observes how things are done (Knoblauch, 2005). Because focused ethnographies are grounded in phenomenology, the researcher is interpreting the participant's experience. They bring forward and unpack a more detailed meaning that lies behind their interview subject's narratives and make it available to an audience (Maggs-Rapport, 2000).

Within this focused ethnography, the lead researcher spent more than two and a half months living in Lightning Ridge, attending events, shopping, talking regularly with locals and observing day-to-day life. The researcher engaged in participant observation by volunteering at a popular gem and jewellery trade show, attending church services and council meetings, and going to social events such as a weekly pool competition. Data for this article was gathered from 31 semi-structured interviews, two discussion groups held in a church hall and at a Rotary Club meeting, and participant observation. The participants who took part in the interviews and discussion groups and who were spoken to during participant observation were demographically diverse. They included people ranging in age from their early 20s to late 70s, working in a variety of professions and trades, and with mixed durations of residency in Lightning Ridge. This was done to gather the widest range of experiences possible of how people were impacted when *The Ridge News* shut down. People who held community leadership positions, such as councillors, former journalists, and heads of volunteer organisations, were interviewed for their knowledge of how *The Ridge News* interacted with political, social, and civic institutions. Other participants were recruited through chance encounters in the field.

Recordings from the interviews and discussion groups were transcribed and analysed using thematic analysis and discussed in relevant sections and subsections. Thematic analysis was deemed as the most efficient method for understanding the dozens of personal experiences captured in the several data-gathering methods.

5. Findings

This section discusses how participants were impacted when *The Ridge News* shut down using the theories and concepts relating to local news's political, social, and civic functions. Scholars commonly consider these themes (see Table 1) as representing the most important functions of news and journalism (Carson et al., 2016; Hess & Gutsche, 2018).

5.1. Loss of Political Engagement and Voice to Power

Existing literature on news gaps demonstrates that when a local newspaper shuts down, people become less informed about local political issues and the candidates who represent them (Hayes & Lawless, 2018; Howells, 2015). Lightning Ridge resident Richard Coen lives in an opal field camp about 3 km from town and used to rely on the local newspaper for political information. With no local news bulletin on the radio or TV, nor internet connection at his camp, he has struggled to adapt to Lightning Ridge's fragmented media ecosystem and missed a town hall meeting:

Table 1. Political, social, and civic impacts Lightning Ridge residents experienced when *The Ridge News* shut down.

Political	Social	Civic
Missed town hall meetings	Missed social events	Difficulty in distributing drought relief
Loss of voice to lobby for political power	Lower sporting match attendance	Drop in volunteer numbers
	Lower funeral attendance	Difficulty for civic institutions to promote themselves
Damaged relationship between council and citizens	Sense of isolation and loss of social connection	Decline in civic discussion and participation
	Loosening of the social fabric	

They had a [townhall meeting with] the politicians on the other day….The only reason I found out about it was because of a white bit of paper on a telegraph poll outside the newsagents….I looked at the date and I [had] missed it. (Interview, July 9, 2019)

Residents also lamented losing an outlet to express their opinions about governmental decisions (Nielsen, 2015). For example, in 2019, government funding was cut to the local charity Food For Families, which provides cheap food, fuel vouchers, and other essential services for up to 50 socially disadvantaged families per day. Without *The Ridge News*, residents said they did not have a reliable and credible outlet to discuss or challenge this decision (Nielsen, 2015). Another example was the closure of the local Centrelink office in 2018, which left the closest office an hour's drive away in the town of Walgett. Centrelink is an Australian governmental organisation that distributes social welfare payments and services, an important institution in Lightning Ridge which has a disadvantaged and elderly population (Australian Bureau of Statistics, 2016). Reflecting on these decisions, Catholic Church committee member Candy Tape commented:

> People are making decisions about the town from out there with no input from us and there is no avenue of reply when things like that happen. People would be writing letters to the paper and we would all know about it, or writing to ministers or local members. (Interview, August 25, 2019)

This demonstrates the important role a local newspaper plays in speaking up to political power and advocating on behalf of a local community (Bowd, 2011). The loss of important government and social services demonstrates the information that falls through the cracks within a news gap.

While it is important to highlight that some residents suggested *The Ridge News* did not comprehensively cover political news, local governments still need journalists to maintain their relationship with the public (Freeman & Hutchins, 2016). In Lightning Ridge, councillors said *The Ridge News* was a barometer of public opinion. In particular, the "Letters to the Editor" section informed councillors about what issues most concerned the public. Deputy Mayor Ian Woodcock said:

> It's harder for people to get the issues that they want addressed in front of councillors….You could write into the editor and they'd publish your letter if it had to do with council or roads or mining or anything at all. Well, now there's no conveyance for any of that, which is a shame. (Interview, August 6, 2019)

As is the case in other Australian localities, councillors prefer local media over other communication channels such as Facebook to maintain relationships with the public (Carson et al., 2016). This is despite an increasing num-

ber of municipalities investing in their own information channels and advertising on social media (Freeman & Hutchins, 2016).

5.2. The Social Fabric Loosens

Lightning Ridge residents felt their social engagement with other community members had weakened since *The Ridge News*' closure (Hess & Gutsche, 2018). Participants missed social events that would have been advertised in the local newspaper and could no longer read about activities and events within the wider community, such as sports (Ali et al., 2018). Ashlee Brown used to manage the local rugby team and noticed older people stopped turning up to matches when the paper shut down:

> To get the word out about home games we would always put an ad in the paper and it would reach a huge audience. And when that wasn't available to us, [members] of the older community who didn't have Facebook wouldn't get reached. It would limit our numbers at football games. (Interview, September 2, 2019)

Participants felt that missing and not hearing about events gave them a sense of isolation and eroded their social connections. Scholars suggest the practice of reading the local newspaper creates a connection and familiarity with their town and community (Bowd, 2011). For example, an elderly man interviewed in the main street said he just "had to know" what was happening in the town to feel connected to others. He could not pinpoint what he wanted to know, rather that he wanted to be "in the know." Similarly, Melvin Samuelsson said he valued being in contact with parts of the population that were not immediately within his social circle:

> It was pretty bad because I guess you couldn't keep up with, like, the people from the golf club. The people who ran it are from an era where everything was written out on paper. They haven't got contact through Facebook or social media. I guess that connection to the golf course is gone. (Interview, September 2, 2019)

Samuelsson's experience is similar to the above examples because his world has become smaller and is not in contact with parts of the town he once was. The interviews reveal a clear theme of people drifting apart from each other and a perception that the unique spirit of the town is slowly changing.

People who live in a community need regular contact for that community to exist, whether it is reading about it in the pages of a local newspaper or being directed to events or happenings where people gather as community members (Ali et al., 2018). This was summarised by Sally Weeks who grew up in Lightning Ridge and used to run the news agency:

I think especially in small communities it's not like there's a lot happening. So the opportunity for everyone to get together, just catch up and enjoy each other's company is what small communities are built on. Everyone pitches in and it doesn't matter what you do or who you are. And when you don't have access to that information I think the fabric of your community loosens. (Interview, August 24, 2019)

One implication of the local newspaper's closure is the impact on information about funeral details (Hess, 2016b). Several participants reported personally missing a funeral they would have attended if *The Ridge News* was still in circulation, demonstrating how entwined the local newspaper is with rituals surrounding death (Couldry, 2003; Hess, 2016b). Nick Lohse is 32 years old and grew up in Lightning Ridge and lamented missing a neighbour's funeral: "I've actually been surprised. Old Pissant Tommy died, well his funeral was last week and that's one I would have gone to if I knew about it" (interview, August 6, 2019).

Local undertaker Ormond Molyneux said in 2019 four people had approached him to say they had missed a funeral. He also noticed a drop in attendance since the newspaper's closure. He said: "You think you're going to get 50 at a funeral but you get 10 or 15. Which is a bit sad" (interview, September 5, 2019).

5.3. Lightning Ridge's Civic Culture

As noted earlier, Dahlgren (2003) lists factors such as shared identity and affinity with institutions that lay the foundations for a civic culture to exist. For these practices and actions to happen, his model requires a shared information source and in Lightning Ridge, *The Ridge News* was the medium for these discussions. With its closure participants found there was an absence of civic discussion and participation (Ekman & Amnå, 2012). Consider this comment from Lightning Ridge resident Dot Thompson:

I'd really like to have a go in the newspaper about a [invasive] vine that's killing our gumtrees....If we made people aware of these things in our newspaper maybe we could get rid of it....In our newspaper years ago I organised a working bee to tidy up the cemetery. I bring the coffee and you bring the gloves. Because of that effort...our cemetery is spick and span. (Interview, August 1, 2019)

Thompson said that over 20 people answered her call through the local newspaper to clean the cemetery. Another way in which *The Ridge News* contributed to civic culture was by enlisting volunteers, something Kimbo Field did more often when *The Ridge News* was in circulation:

I've heard of things that have happened and thought I would have been there to help or contribute to

[them]. So if I read the paper I could say ok, next week there is a charity for someone's kids, or Daffodil Day or Pink Ribbon Day. (Interview, August 24, 2019)

Local newspapers typically boost initiatives that benefit their town and reinforce what is considered good (Bowd, 2011; Hess, 2016a). In small towns, not-for-profit civic institutions play a large role in filling the service gap that government is unable to provide. They rely on local media for fundraising and to rally volunteers. The Australian Opal Centre (AOC) is a volunteer-run museum focused on the natural history of Lightning Ridge. At the time of fieldwork, it was fundraising to build a multimillion-dollar research and museum facility which would be one of the main tourist attractions in Outback Australia. Former volunteer coordinator Vicki Bokros spoke of the broader impact that *The Ridge News* had on volunteer numbers: "I had no way of finding [people] that are retired that could volunteer....Whereas with the paper, our ad would say volunteers needed for 'this'" (interview, August 28, 2019).

Without *The Ridge News*, more hours are spent on promotion through Lightning Ridge's fragmented media ecosystem and the day-to-day running of civic institutions was more difficult. While turnout to AOC events has not dropped, more hours have to be devoted to informing Lightning Ridge residents about them. The AOC uses social media, printout notices, direct email, and letter box drops. Speaking from her position as AOC special projects manager Jenni Brammall said:

Sometimes we provided copy for the newspaper and they would run the copy as provided and photographs and so on, maybe to report on an event or a new acquisition for the fossil collection, or to talk about our volunteer program and put a call out for new volunteers....It's become much more difficult for us to really infiltrate parts of the community that the paper used to. (Interview, August 5, 2019)

At the time of fieldwork, the Lightning Ridge Rotary Club had also undertaken considerable fundraising for drought relief, which in the past would have been distributed using the newspaper. Now Rotary members raise awareness through their Facebook page and the local high school, approaches that do not have the same reach as *The Ridge News* (Carson et al., 2016). Consider this comment from Rotary Club member John Bevan: "It's harder to raise money for drought relief without the newspaper and distribute it to where it needs to go. Farmers have no idea we are doing it so if they don't put their hand up, they miss out" (interview, September 2, 2019).

6. Conclusion

This article uses a focused ethnography to demonstrate the multifaceted ways residents living in Lightning Ridge were impacted when *The Ridge News* shut down. It uses

the political, social, and civic (see Table 1) to explore the different functions of a newspaper and to tease out the implications of its closure. This approach has illuminated that while local newspapers play an important role in maintaining a town's public sphere, it is one that encompasses many aspects of everyday life (Hess & Gutsche, 2018). Participants listed a myriad of impacts such as missing funerals and volunteer opportunities, a drop in local sporting matches, and being unaware of people who require assistance. They also missed political events or were denied the chance to participate in processes. These examples led participants to say they felt voiceless in response to decisions made by governmental organisations and that the social fabric had loosened since *The Ridge News*' closure. This also meant that information did not flow to institutions and individuals that held positions of power in Lightning Ridge. Council members and local politicians are now less exposed to criticism and also lack an important avenue to gauge public opinion on issues affecting Lightning Ridge. Residents also had more difficulty elevating information to the wider community to take advantage of the town's civic culture, which was seen to be an important avenue for addressing issues that existed alongside and were separate from Lightning Ridge's political institutions. A commonality woven through the three themes presented in this article was that something was missing or had declined and that the community was weaker without a local newspaper. This is an important point because while the results examined in this article are specific to Lightning Ridge, more than 100 local and regional newspapers have shut down in the past decade indicating how widespread the issue of news gaps is (Public Interest Journalism Initiative, 2020).

Despite there being clear public demand and the need for a dedicated source of local news in Lightning Ridge, a successful replacement has also not yet been found. This is not from a lack of effort as attempts have been made by individuals to start either print or online sources of local news. The research shows that cost, funding support, and lack of journalistic expertise prohibit people from replacing the local newspaper, as seen with the small amount of time a community member was able to dedicate to the Northwest News Facebook page. It should also be noted that although Facebook is celebrated as being central to facilitating mediated social connection, people still felt the local newspaper was superior in enhancing their social connection over the many Facebook pages operating in Lightning Ridge. This suggests that journalists, policymakers, and academics must appreciate the various ways that local news outlets benefit a community when adequately resourced. It is also an important consideration given Australia's Media Bargaining Code and the fact that the recent round of subsidy support does not recognise new start-up enterprises. This was also a broader criticism from media commentators, that the code favoured bigger and established media conglomerates and subsidies provided to

the sector have so far ignored support for start-up ventures (Hess & Waller, 2020; Snape, 2021).

An area that policymakers should look to address in future is where and how they can best support new start-ups in areas identified as being in news "deserts" or especially vulnerable to information gaps. This could be via support for journalism training or funding for production or wages. Policymakers could also look to successful local newspapers to understand what differentiates them from *The Ridge News* and the attempts made by individuals to plug the news gap in Lightning Ridge.

Conflict of Interests

The authors declare no conflict of interests.

References

Abernathy, P. (2018). *The expanding news desert*. Center for Innovation and Sustainability in Local Media.

Ali, C., Radcliffe, D., Schmidt, T. R., & Donald, R. (2018). Searching for Sheboygans: On the future of small market newspapers. *Journalism*, *21*(4), 453–471.

Australian Bureau of Statistics. (2016). *2016 Lightning Ridge: Census all persons QuickStats*. https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/SSC12320

Barnett, S., & Townend, J. (2014). Plurality, policy and the local: Can hyperlocals fill the gap? *Journalism Practice*, *9*(3), 332–349.

Berelson, B. (1949). What "missing the newspaper" means. *Communications Research 1948–1949*, *1949*, 111–129.

Bowd, K. (2011). Reflecting regional life: Localness and social capital in Australian country newspapers. *Pacific Journalism Review*, *17*(2), 72–91.

Carson, A., Muller, D., Martin, J., & Simons, M. (2016). A new symbiosis? Opportunities and challenges to hyperlocal journalism in the digital age. *Media International Australia*, *161*(1), 132–146.

Claussen, D. S. (2020). Continuing to digest the report, news deserts and ghost newspapers: Will local news survive? *Newspaper Research Journal*, *41*(4), 395–398.

Couldry, N. (2003). *Media rituals: A critical approach*. Psychology Press.

Dahlgren, P. (2003). Reconfiguring civic culture in the new media milieu. In J. Corner & D. Pels (Eds.), *Media and the restyling of politics: Consumerism, celebrity and cynicism* (pp. 151–170). SAGE.

Department of Infrastructure, Transport, Regional Development, Communications and the Arts. (2021). *Regional and small publishers jobs and innovation package*. https://www.infrastructure.gov.au/media-centre/publications/regional-and-small-publishers-innovation-fund-0

Dickson, G. (2020, June 8). Local news sources are closing across Australia: We are tracking the devastation

(and some reasons for hope). *The Conversation*. https://theconversation.com/local-news-sources-are-closing-across-australia-we-are-tracking-the-devastation-and-some-reasons-for-hope-139756

Durkheim, E. (1982). *The rules of sociological method*. Palgrave Macmillan.

Ekman, J., & Amnå, E. (2012). Political participation and civic engagement: Towards a new typology. *Human Affairs*, *22*(3), 283–300.

Ekman, J., & Amnå, E. (2022). Civic engagement. In M. Giugni & M. Grasso (Eds.), *The Oxford handbook of political participation* (pp. 381–395). Oxford University Press.

Evans, C. (2020, May 25). Coronavirus: Newspapers "struggling to survive" pandemic. *BBC*. https://www.bbc.com/news/uk-wales-52771503

Ferrier, M. (2014, February 28–March 1). *The media deserts project: Monitoring community news and information needs using geographic information system technologies* [Paper presentation]. AEJMC Midwinter Conference, Norman, OK, United States.

Ferrier, M. (2018). *The Media Deserts Project: Mapping access to fresh news and information*. The Media Deserts Project. https://mediadeserts.wordpress.com

Freeman, J., & Hutchins, B. (2016). Digital media and local democracy: News media, local governments and civic action. *Australian Journalism Review*, *38*(2), 19–30.

Gulyas, A. (2021). Local news deserts. In D. Harte & R. Matthews (Eds.), *Reappraising local and community news in the UK* (pp. 16–28). Routledge.

Hare, K. (2021, December 2). The coronavirus has closed more than 60 local newsrooms across America. And counting. *Poynter*. https://www.poynter.org/locally/2021/the-coronavirus-has-closed-more-than-60-local-newsrooms-across-america-and-counting

Hayes, D., & Lawless, J. L. (2015). As local news goes, so goes citizen engagement: Media, knowledge, and participation in US house elections. *The Journal of Politics*, *77*(2), 447–462.

Hayes, D., & Lawless, J. L. (2018). The decline of local news and its effects: New evidence from longitudinal data. *The Journal of Politics*, *80*(1), 332–336.

Hess, K. (2016a). Power to the virtuous? Civic culture in the changing digital terrain. *Journalism Studies*, *17*(7), 925–934.

Hess, K. (2016b). Ritual power: Illuminating the blind spot of births, deaths and marriages in news media research. *Journalism*, *17*(4), 511–526.

Hess, K., & Gutsche, R. E., Jr. (2018). Journalism and the "social sphere" reclaiming a foundational concept for beyond politics and the public sphere. *Journalism Studies*, *19*(4), 483–498.

Hess, K., & Waller, L. (2020). Charting the media innovations landscape for regional and rural newspapers. *Australian Journalism Review*, *42*(1), 59–75.

Hess, K., & Waller, L. (2021). Local newspapers and coro-navirus: Conceptualising connections, comparisons and cures. *Media International Australia*, *178*(1), 21–35.

Howells, R. (2015). *Journey to the centre of a news black hole: Examining the democratic deficit in a town with no newspaper* [Doctoral dissertation, Cardiff University]. ORCA. https://orca.cardiff.ac.uk/id/eprint/87313

Knoblauch, H. (2005). Focused ethnography. *Forum Qualitative Sozialforschung Forum: Qualitative Social Research*, *6*(3). https://doi.org/10.17169/fqs-6.3.20

Lindgren, A., Corbett, J., & Hodson, J. (2020). Mapping change in Canada's local news landscape: An investigation of research impact on public policy. *Digital Journalism*, *8*(6), 758–779.

Magasic, M., & Hess, K. (2021). Mining a news desert: The impact of a local newspaper's closure on political participation and engagement in the rural Australian town of Lightning Ridge. *Australian Journalism Review*, *43*(1), 99–114.

Maggs-Rapport, F. (2000). Combining methodological approaches in research: Ethnography and interpretive phenomenology. *Journal of Advanced Nursing*, *31*(1), 219–225.

Mathews, N. (2020). Life in a news desert: The perceived impact of a newspaper closure on community members. *Journalism*, *23*(6), 1250–1265. https://doi.org/10.1177/1464884920957885

McNair, B. (2012). *Journalism and democracy: An evaluation of the political public sphere*. Routledge.

Moritz, B., & Thompson, S. (2009). *My own boss: Migrant opal miners at Lightning Ridge*. Migration Heritage Centre.

Nielsen, R. K. (2015). Introduction: The uncertain future of local journalism. In R. K. Nielsen (Ed.), *Local journalism: The decline of newspapers and the rise of digital media* (pp. 1–30). I. B. Tauris & Company.

Public Interest Journalism Initiative. (2020). *PIJI—Public Interest Journalism Initiative*. https://piji.com.au

Putnam, R. D. (1995). Bowling alone: America's declining social capital. *Journal of Democracy*, *6*(1), 64–78.

Ramsay, G. N., Freedman, D., Jackson, D., & Thorsen, E. (2017). *Mapping changes in local news 2015–2017: More bad news for democracy?* The Centre for the Study of Journalism, Culture and Community. https://www.mediareform.org.uk/wp-content/uploads/2017/12/mapping-changes-in-local-news-2015-2017-interactive-research-report-march-2017.pdf

Snape, J. (2021, February 24). The media bargaining code has passed parliament, but don't rule out another Facebook news ban yet. *ABC News*. https://www.abc.net.au/news/2021-02-24/news-media-bargaining-code-passes-parliament-facebook-ban/13186354

Young, S. (2022, April 26). Newsprint price woes for regional papers. *Sprinter*. https://www.sprinter.com.au/newsprint-price-woes-for-regional-papers

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Article

Dealing With Covid-19 in Casual Democracies

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Abstract
This article reports findings from an in-depth, autoethnographic study of local communities in Denmark and England left behind by local journalism. The study was conducted during—and is thematically framed by—the Covid-19 pandemic, and it investigates how news, information, and deliberation related to this crisis were facilitated in the communities. The article embarks from ideas of informed citizenship and problems of misinformation and free speech related to the pandemic, and it aims to uncover developments in local democracy in places left behind by local journalism and dominated by platforms. The article argues that "news desert" is not an accurate term describing such places. Instead, such places and their social media platform dependency constitute what is identified as "casual democracies." In casual local democracies, who and what gets to dominate the local public spheres is difficult to predict, as are the credibility and trustworthiness of local news and information and the interests that local news and information providers serve. Such local democracies are, to a large degree, shaped by informal power structures, individual agency, and the infrastructure of platforms.

Issue
This article is part of the issue "News Deserts: Places and Spaces Without News" edited by Agnes Gulyas (Canterbury Christ Church University), Joy Jenkins (University of Missouri), and Annika Bergström (University of Gothenburg).

1. Introduction

Recent decades have seen a steep decline in local journalism across Europe, North America, and other parts of the world (e.g., Hayes, 2021; Nielsen, 2015). Local news media have been forced to shut down due to loss of readership and lack of sustainable revenue models, creating so-called "news deserts," communities with no journalistic outlet reporting on local affairs, and "ghost newspapers," outlets so deprived of resources that they no longer can engage in proper reporting (Abernathy, 2020). Scholars argue that the collapse in local news outlets represents "the greatest challenge facing journalism today" (Wahl-Jorgensen, 2019, p. 163) and a major threat to the well-being of local democracies (Miller, 2018). Studies indicate that citizen engagement drops significantly when local journalism vanishes (Hayes & Lawless, 2015), voting polarisation increases with newspaper closures (Darr et al., 2018), and communities without journalistic outlets have higher degrees of corruption and other forms of misgoverning (Adserà et al., 2003).

Yet, in-depth research on how local democracy develops in places left behind by local journalism is scarce and often based on the assumption that local journalism is a prerequisite for civic engagement and informed citizenship (Usher, 2023). This article presents a study where the link between (a lack of) local journalism and civic engagement, and informed citizenship is not assumed but empirically investigated. The article builds on immersive, autoethnographic data from two communities left behind by local journalism. The study aimed to empirically investigate the opportunities and challenges for informed citizenship in these communities where local journalism plays an insignificant role and, consequently, what characterises local democracies in such communities. The study was conducted during the peak of the Covid-19 pandemic in 2020 and 2021, providing knowledge on how local democracies without local journalism developed in a time of crisis. This is important because people's need for accurate information increases during a crisis (Westlund & Ghersetti, 2015). This was also the case during the Covid-19 pandemic

(Bento et al., 2020) when several journalistic media institutions across Europe experienced a massive increase in audience reach (Van Aelst et al., 2021). At the same time, the crisis hit the news media hard financially, with revenues from advertisements dropping dramatically, especially for local news media (Olsen et al., 2020). The important question is, therefore, how people in local communities managed to satisfy their need for accurate information about the local handling of the pandemic when local, legacy news media could no longer provide it.

For obvious reasons, the pandemic made ethnographic research difficult, especially comparative ethnographies across countries. This study is, therefore, unique as it presents first-hand autoethnographic data from two different countries, England and Denmark, during a period when multiple restrictions were in place, especially related to travel and social mobility. The two cases are similar in representing places left behind by local journalism. They are different in that they represent social, political, and cultural differences between the UK and Denmark, and in the sense that one is urban (Frederiksberg in Copenhagen, Denmark) and the other rural (Ringwood in Hampshire, UK). After reviewing relevant research and literature, the two cases, the methodological procedures, and the findings will be presented in detail.

Ultimately, the article argues that places left behind by local journalism are not necessarily news deserts but instead resemble what I label "casual democracies," in which the constitution of "news" is fluid and partly randomised, conditions for freedom of speech and whom and what to trust are disguised by platform infrastructure and undisclosed interests, and where the local public sphere is operated in part by random individuals. There is a potential risk that the combination of platform infrastructure and individual agency can create new, unstable hierarchies of power with unclear democratic anchoring.

2. News Deserts, Platformisation, and Informed Citizenship

Journalism and democracy have for centuries been viewed as inseparable concepts by scholars and professionals alike (Ryfe, 2019). One central idea behind the journalism/democracy nexus is that journalism's core mission is to enable informed citizenship. The premise behind what Schudson (1999) labelled the "informed citizen model of democracy" is that in a well-functioning democracy, people have a need to be informed about politics and the deliberations and decisions of those who are elected to govern. Ideally, journalism fills such a role, both in local and national contexts. In practice, however, local journalism has not necessarily met this expectation (Nielsen, 2015), partly because it often lacks the resources necessary to scrutinise local authorities properly. As revenue streams have decreased, resources for many local newspapers have declined to such an extent that they have become "ghosts" of their former selves, implying that the "quality, quantity and scope of their editorial content are significantly diminished" (Abernathy, 2020, p. 24). There are two paths to becoming ghost newspapers, according to Abernathy. The first is that a local newspaper is acquired by a larger daily and slowly fades away as its news-gathering operations are merged with the larger paper's. The second path is when a local paper's newsroom staffing is cut so dramatically that the remaining reporters cannot adequately cover their communities. It is well documented that many local newspapers have followed one of these paths in recent decades, not only in the US, both also in many European countries (Hayes, 2021; Nielsen, 2015). None of these paths leads to a good place—they tend to end in "news deserts," places where no local news is reported by journalists at all.

However, communities left behind by local journalism are not necessarily deprived of news or mediated public spaces facilitating informed citizenship (Collier & Graham, 2022). Local public spheres, understood in a broad sense as the metaphorical space where people find out what's happening in their community, the social, cultural, and political issues that face them, and where they also can engage with these issues and have their voices heard (McKee, 2005, p. 5), have in large parts been re-configured around digital platforms. A far-reaching process of platformisation has transformed not only how people stay informed about and connected to their community, but has also re-shaped almost all aspects of what constitutes society (Poell et al., 2019). A premise for the study to be presented in this article is, therefore, that communities left behind by local journalism are not necessarily news deserts, understood as places devoid of news—they might be places where local news finds alternative forms and alternative means of production, distribution, and consumption.

Local social media groups facilitate the distribution and discussion of local news (Swart et al., 2019), even in places where no traditional local news outlets exist. However, social media news consumption is quite different from the consumption of news produced and distributed by traditional local news outlets operated by journalists and editors. First, it is facilitated and restricted by technological affordances that regulate what can be communicated on a given social media platform, how such communication is facilitated, and the algorithms that control its diffusion patterns—all of which are controlled remotely and not, for instance, by a local editor; instead, they involve black-box algorithmic decisions that are inaccessible to users (Cotter, 2021). Second, social media news consumption is incidental and heavily dependent on opinion leaders (Bergstrom & Belfrage, 2018). It does, therefore, not adhere to the routines associated with journalistic news production and consumption, nor to the judgments of locally based professional journalists and editors. Third, social media news consumption is enmeshed with other kinds of information sharing and consumption from both private and public spheres,

thereby blurring the boundaries between various producers and types of news and information. The consequence is that in social media news consumption, news has become separated from journalism (Steensen & Westlund, 2021).

I, therefore, argue that the idea of "news deserts" confuses "news" with "journalism" as part of the "descriptive fuzziness" (Usher, 2023, p. 239) that makes the concept problematic. Places without traditional local newspapers might lack journalism, but they don't lack news. However, what *kinds* of local news exist, *who* distributes, consumes, and discusses it, and how *trustworthy* such news is depends on the technological affordances of social media platforms and other factors related to local cultural norms and values within the social fabric of the community in question. Such factors include what is considered news- and trustworthy by whom in a given community, how boundaries between the private and the public are drawn, what is considered proper means of public communication locally, local expectations towards volunteerism, degrees of social control, and opportunities and traditions for individual agency in the community. Many of these factors are related to local news production being de-professionalised and instead left to any community member with the time and capacity to produce and share information that might be perceived as news.

The disconnection of news from journalism also means that the idea of informed citizenship needs to be de-connected from journalism. As argued by Deuze (2008, p. 848), the old notion of informed citizenship is "a thing of the past—a prescriptive and rather elitist notion of both how people should make up their minds and what (political) representation means to them." The many technological, cultural, and social factors that shape platformised news production, distribution, and consumption also shape what informed citizenship means in a community without local journalism. One cannot assume that because there is no local journalism, possibilities for informed citizenship do not exist. Rather, how and to what degree people living in places left behind by local journalism are informed about and connected to their community is an empirical question. Finding answers to that question requires looking beyond traditional newsrooms and instead focusing on whatever information networks constitute the local public spheres—who, how, and what shape them. This will be investigated in this article concerning a crisis, the Covid-19 pandemic. The aim is not only to find out what kinds of news circulate in communities left behind by local journalism but also to discover how local democracy develops when local journalism is no longer a significant part of it. Specifically, the article addresses three empirical research questions, the first being:

- RQ1: What possibilities did the people of Ringwood and Frederiksberg have to stay informed about the local handling of the Covid-19 pandemic?

3. Covid-19 and the Infodemic

The Covid-19 pandemic has been portrayed as a crisis with two dimensions: a public health dimension and a public information dimension. Concerning the latter, the World Health Organization (WHO) labelled the crisis an "infodemic," meaning "an overabundance of information—some accurate and some not—that makes it hard for people to find trustworthy sources and reliable guidance when they need it" (WHO, 2020, p. 2). Concerns about false and misleading information related to the pandemic are largely connected with social media platforms. Several studies have documented the spread of Covid-19 related conspiracy theories and other forms of misinformation on social media platforms (e.g., Islam et al., 2020), while others have documented that such misinformation could cause psychological disorders and panic, fear, depression, and fatigue (Rocha et al., 2021). Such concerns led authorities, social media platforms, and news and fact-checking organisations to fight against Covid-19 misinformation actively, for instance, by filtering out or flagging false content (Niemiec, 2020). This, in turn, created concerns over what the infodemic did to the conditions for free expression. Reflecting such concerns, a Council of Europe report stated that "free and pluralistic public debate is crucial for the public's understanding of the situation and for their ability to make informed decisions, limit rumours, recognise disinformation and foster solidarity and trust in measures taken to address the crisis" (Noorlander, 2020).

Studying pandemic-related news and information in communities that are left behind by local journalism and dominated by social media platforms is therefore important since such communities might have been more vulnerable to misinformation while relying on platform algorithms and administrators of local social media groups to moderate free speech. It is well documented that the algorithmic moderation of social media platforms represents a limitation on any potential threat to users' right to free speech (Dias Oliva, 2020). This potential tension between the right to free speech and a need to fight misinformation related to the pandemic will be investigated in this article as a critical incident for the state of local democracy in places left behind by local journalism. Specifically, the following two empirical research questions will be addressed:

- RQ2: To what degree was Covid-19 related misinformation a concern in Ringwood and Frederiksberg?
- RQ3: How was the tension between censoring misinformation and the right to free expression negotiated in the local public spheres of Ringwood and Frederiksberg?

4. The Cases

Most studies of places left behind by local journalism are conducted in rural areas marked by socio-demographic

problems related to unemployment and poverty. It is, therefore, difficult to assess how the decline of local journalism has affected these communities and their local democracies since there are so many other issues that are causing problems simultaneously. This is one of the reasons for choosing Frederiksberg and Ringwood as cases for this study, as both these places are quite prosperous and marked by relatively few socio-demographical problems compared to the average communities in Denmark and the UK. Moreover, as countries, Denmark and the UK are highly developed democracies with relatively few socio-demographical problems compared to many other democracies (United Nations Development Programme, 2020, p. 343).

Frederiksberg is a densely populated municipality encapsulated within the city of Copenhagen. A population of 105,000 live there, squeezed into nine square kilometres. There used to be two local newspapers in Frederiksberg. One closed in 2018, while the other, *Frederiksberg Bladet* (a weekly, free, ad-financed newspaper), had to lay off all but one journalist during the spring of 2020 due to a massive loss of advertising revenue. In late August 2020, the Danish trade press publication *Journalisten.dk* ran a story titled, "The Biggest News Desert in Denmark? You'll Never Guess Where it Is" (Albrecth, 2020). The answer was Frederiksberg.

In contrast to Frederiksberg, Ringwood is a small, rural market town in southern England, just north of the city of Bournemouth. The town is situated within Ringwood town parish (a parish being the lowest tier of governance in England), in which around 15,000 people live, mostly in villages outside the town centre. There is no traditional local newspaper in Ringwood, but the town occasionally receives some coverage from the local papers in the nearby, bigger cities of Bournemouth and Salisbury. These newspapers used to have local offices in Ringwood, but those were closed several decades ago. There is, however, an untraditional, non-journalistic newspaper in town, the *Ringwood and Fordingbridge News*. This newspaper is published bi-weekly and distributed to almost all households for free. The publisher is a local politician, and the content is a mixture of local ads and articles submitted by mostly local charities and other NGOs. No one gets paid to write for the paper, according to the publisher (Interview 17), who established it when the regional papers closed their satellite offices in Ringwood in the 1990s.

Given this lack of coverage from local journalism, various social media platforms became the main channels of news, information, and public deliberation on matters of local interest in both Frederiksberg and Ringwood. Facebook was the most significant in both communities, with several local groups and pages playing important roles in the local public spheres. In addition, the location-based social media platform Nextdoor played a role in Ringwood.

During the study period, August 2020 to July 2021, many important events concerning the pandemic happened, which had important ramifications for people in the two local communities. Figure 1 displays a timeline of infection rates and the main events of the pandemic in Denmark and the UK during this period.

5. Materials and Methods

The study is based on an analysis of three datasets collected from the two case studies, Frederiksberg and Ringwood, as part of a larger research project on local public spheres. Dataset 1 contains field notes from 10 months of autoethnographic observations and reflections (five months in each community) and transcribed interviews with "key information brokers." Dataset 2 contains data from local Facebook groups and pages, while Dataset 3 contains a content analysis of the two local newspapers, *Frederiksberg Bladet* and *Ringwood and Fordingbridge News*. Since the data material contains personal information, approval to collect, store, and analyse such data was acquired by the Norwegian Agency for Shared Services in Education and Research.

5.1. Dataset 1: Field Notes and Interviews

Autoethnography implies that the researcher writes about their own experiences as part of a culture (Pitard, 2017). It differs from other ethnographic approaches as the researcher's own experiences are part of the analysis (hence the prefix "auto"). I lived in Frederiksberg from August to December 2020 and in Ringwood from February to July 2021, trying to become as integrated into these communities as possible. The field notes contained impressions and reflections on experiences with living in the communities, notes from encounters with people and meetings I attended, and reflections and descriptions of information and news I came across, both mediated and unmediated, offline and online.

The field notes thereby also included elements of netnography, an adaptation of ethnography for virtual spaces (Kozinets, 2020). Netnography involves studying online cultures and communities by being part of them over time. I became a member of several public and private social media groups, predominantly on Facebook but also on Nextdoor (in Ringwood). Notes from the netnographies were included in the same notebook as other field notes.

Interview subjects were identified through the autoethnographic experience. I identified "key information brokers" in each community, i.e., people who played important roles in the local public spheres. These included local politicians, representatives of local authorities and NGOs, administrators of local social media groups and pages, publishers of important news outlets, and some journalists and editors. These interviews were semi-structured and included some generic questions on the interview subjects' reflections on local democracy, conditions for free speech, the local media scene, the availability of trustworthy news and information,
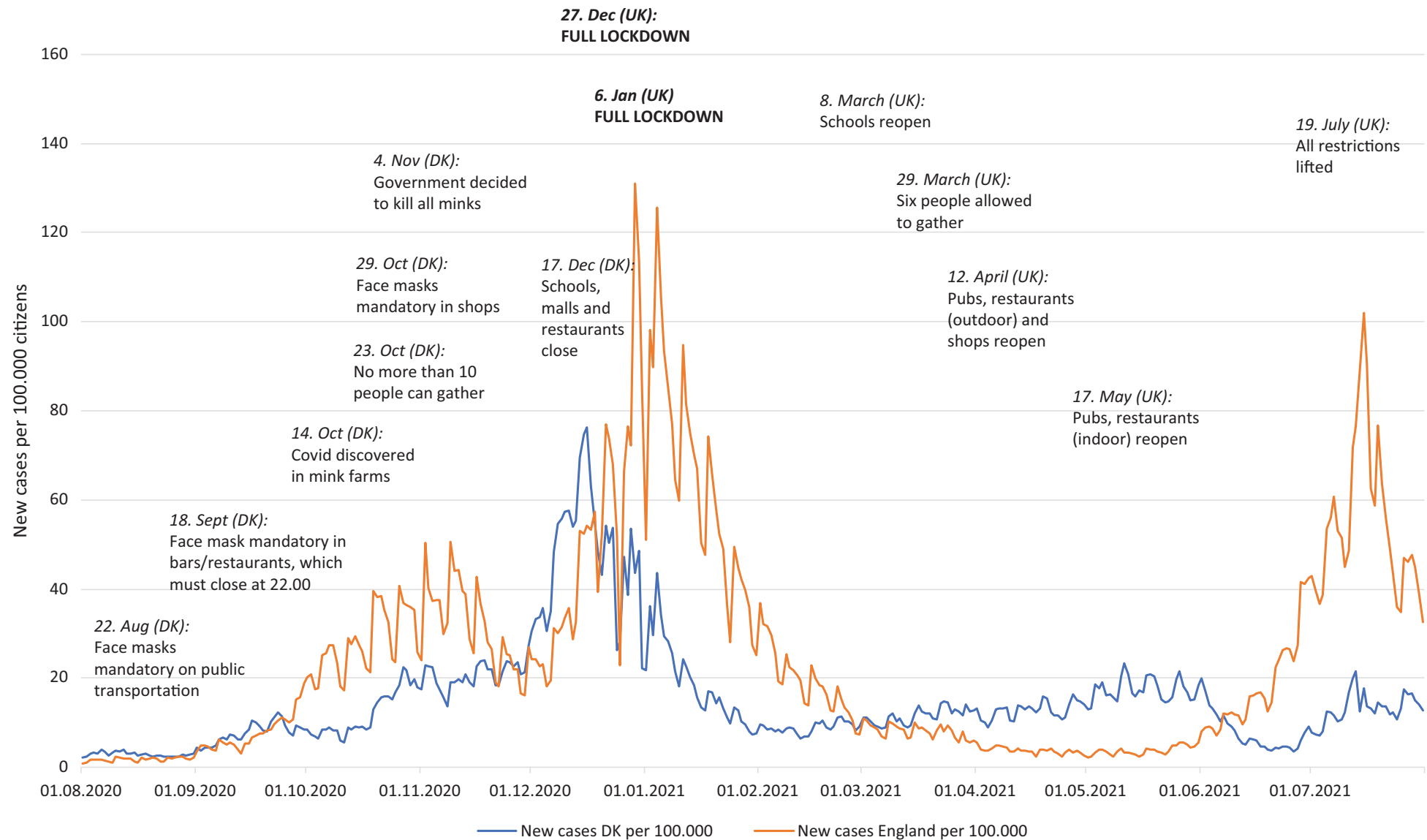
Figure 1. Timeline of new Covid-19 cases and main events (government restrictions), Denmark and UK, 31 August 2020 to 31 July 2021. Sources: GOV.UK (2023), Institute for Government (2022), and Statens Serum Institut (2022, 2023).

and specific questions related to their roles in the community. Interviews lasted between 45 minutes and 2 hours. Most were conducted face-to-face, but some were conducted over Zoom due to Covid-19 restrictions. Thirty-two people were interviewed, 16 in each community, all giving informed consent to participate as informants. All interviews were recorded and transcribed by a research assistant.

The field notes and interview transcripts were imported to Nvivo and coded with three broad categories of codes: A topics category, out of which the covid topic with several sub-topics will be analysed in this article; a themes category, with codes such as "democracy" (with sub-codes), "disinformation," "trust," "moderation," "free speech," etc; and a media category, with codes reflecting the names of mentioned media and platforms. The codes were mostly inductively developed, as topics, themes, and media were mentioned in the data. This coding structure allowed me to utilise the analytical power of Nvivo to find the themes that corresponded with various aspects of the Covid-19 topic.

5.2. Datasets 2 and 3: Media Content

Part of the autoethnographic experience was identifying media and platforms relevant to the local public spheres. Facebook groups and pages played a major role in both places, and I set up lists with the biggest local Facebook groups and pages in CrowdTangle, a public insights tool owned and operated by Facebook. CrowdTangle only provides access to public groups and pages, meaning that some significant private groups had to be analysed manually through netnography (see Section 5.1). All posts from all the local Facebook groups and pages published between August and December 2020 (Frederiksberg) and January and July 2021 (Ringwood) were downloaded as CSV files, which were imported to Excel for analysis.

Dataset 3 is the content of the print editions of the two local newspapers, *Frederiksberg Bladet* and *Ringwood and Fordingbridge News*. I was able to access and download all issues of *Frederiksberg Bladet* from August to December 2020 as PDF files. These issues contained 625 stories. As for the *Ringwood and Fordingbridge News*, I collected all but one issue published between February and July 2021. These issues contained 210 stories. Two research assistants assisted with the content analysis of these stories. The content analysis was designed based on variables used by Williams et al.'s (2015) study of hyperlocal news sites in the UK, meaning that the main topic of each story was identified mostly through a predefined list of topics (with the addition of Covid-19 as a new, separate topic). Other variables of relevance for this study were author, role of author, and genre. I set up a detailed coding manual in cooperation with the research assistants, and intercoder reliability tests (Krippendorff's alpha) showed satisfactory results (ranging from $\alpha = 0.80$ for topic to $\alpha = 0.97$ for author role).

6. Findings

The findings will be presented case by case, starting with Frederiksberg. First comes findings from the content analysis, which mostly addresses RQ1. Then follows findings from the autoethnographic field notes and interviews, which are relevant mostly concerning RQs 2 and 3. However, as the discussion in the next sections will reveal, all three datasets have relevance for all three RQs.

6.1. Diffusion of Covid-19 Information in Frederiksberg Media

The content analysis of *Frederiksberg Bladet* (the print edition) during the fall of 2020 shows that the Covid-19 pandemic was not a topic that dominated this newspaper. The share of the content published from August to December that dealt with the pandemic was 4.5% (28 stories), making it the 10th most popular topic. The share is even lower if we look at news stories only (3.7%), meaning that most of the Covid-19-related content was letters to the editors. The biggest group of Covid-19 letter writers was local politicians, who were mostly calling for support of local businesses and cultural institutions during the lockdown. The second biggest group of letter writers was citizens who discussed various types of restrictions (like if masks are useful or not, and if they should be allowed to run/exercise in parks).

The content of the Frederiksberg Facebook groups and pages shows a different picture. Ten percent of all posts from the local groups and pages analysed were related to the pandemic. Figure 2 shows the number of posts and the share of Covid-19-related posts per group and various page categories. Posts in the groups make up more than half of all the posts in the dataset. But Covid-19 related posts were more common in the pages than in the groups. The official page of the municipality had the highest share of Covid-19-related posts (17%), implying that the municipality found it important to provide information about the pandemic. Local politicians and community organisations were also quite active in their Covid-19-related Facebook communication, as was *Frederiksberg Bladet*, which had a significantly higher share of Covid-19-related posts on its Facebook page than in the newspaper.

Covid-19-related posts published by the municipality on its official Facebook page and by local politicians on their Facebook pages were shared more than twice as often as other posts from the same pages. In contrast, Covid-19-related posts published on *Frederiksberg Bladet*'s Facebook page were shared much more rarely than other posts. In other words, people found Covid-19-related information published by the municipality and local politicians far more shareable, and thereby perhaps more trustworthy, than Covid-19-related information published by *Frederiksberg Bladet*.

This picture becomes even clearer when we look at the posts with the most interactions, meaning posts
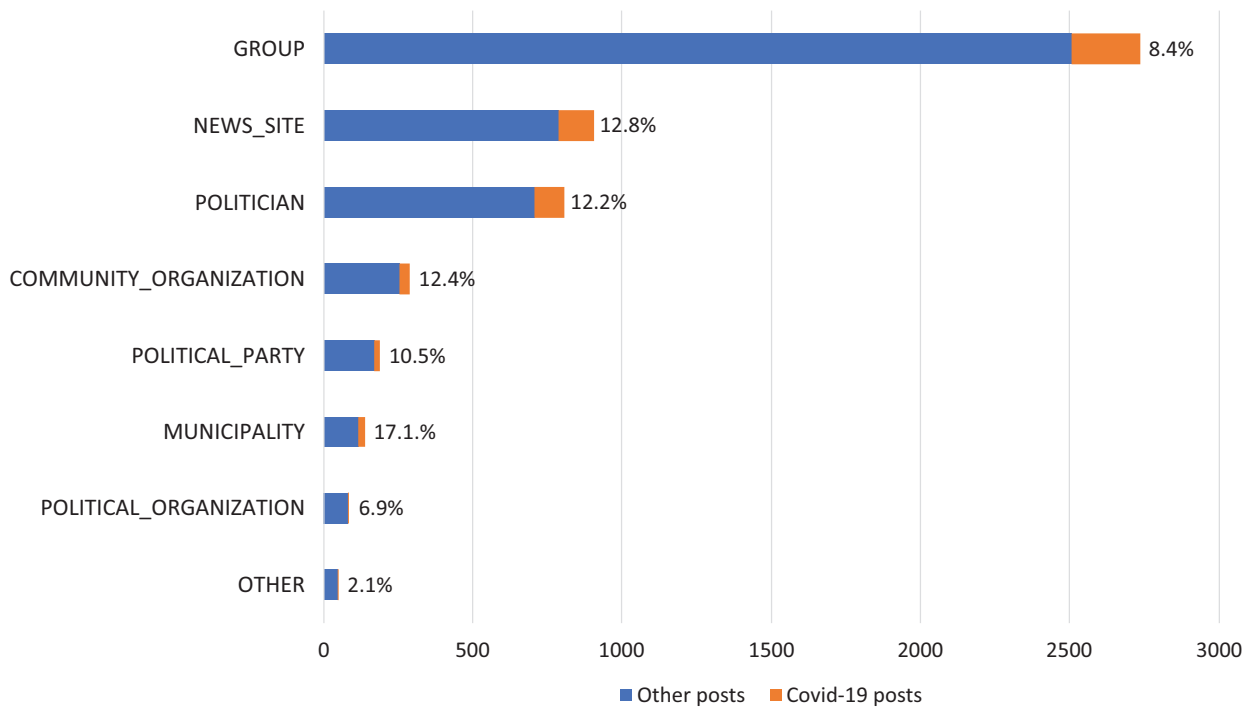
Figure 2. Number of posts in Frederiksberg Facebook groups and pages, August–December 2020 (*N* = 5,203). Notes: Percentages are shares of Covid-19-related posts per category; the Group category is the three biggest public local Facebook groups; news sites are predominantly the Facebook page of *Frederiksberg Bladet*, but also a few other news-oriented, non-journalistic pages run by local, commercial enterprises; politicians are the pages of local politicians.

with the most likes, comments, and shares. The majority of the most interacted with Covid-19 posts were posted by local politicians, with the mayor as the dominant actor. The most interacted with of all posts was a news update the mayor posted on 27 December 2020, informing people that schools would not open until 11 January. None of the most interacted with Covid-19 posts was published by *Frederiksberg Bladet* or any other news outlet for that matter.

6.2. Misinformation and Free Speech in Frederiksberg

The Nvivo coding matrix reveals that thematic codes related to moderation, free speech, and misinformation often co-occurred with field notes and snippets of interview transcripts coded with various Covid-19 topical codes. This was particularly related to restrictions such as the mandatory use of face masks. Discussions on face masks, other restrictions, and the pandemic, in general, could become quite heated and confusing, often with an unclear factual basis. One example was when someone shared a graph in one of the Facebook groups showing the number of deaths due to Covid-19 compared to other deceases, the point being that Covid-19 was much less deadly. This created a heated debate and lots of confusion, but it was impossible to determine the graph's source and if the numbers were correct. Nevertheless, many people took the graph at face value and used it to argue against the restrictions (field notes, week 18, 2020).

The two biggest Facebook groups dealt with discussions on restrictions in very different ways. The biggest group, which was set as private and which therefore is not part of the CrowdTangle data presented above, banned discussions on face masks because such discussions tended to violate this group's policy, which stated that political content and hateful rhetoric were not allowed (field notes, week 7, 2020). On the other hand, discussions on Covid-19 restrictions were common in the second biggest Facebook group, and the municipality would use this group to post updates on restrictions and inform people about how they were to behave locally. However, the group administrator would often question such posts, as he, for example, did when the vice-mayor posted a video on the importance of wearing face masks (field notes, week 7, 2020). In fact, the group admin would often post things himself or comment on others' posts with arguments against face masks. In the interview, he said: "There are just many things about this pandemic where the information simply isn't on top. I am one of those who believe that masks do not have the desired effect" (Interview 2).

This admin's views became quite widespread in the Facebook group, and debates could be intense. Quite often, people would be accused of being "fact resistant" or similar things when they expressed views opposing restrictions or other official positions regarding the pandemic. In other words, there was tension between the right to free speech and the need to avoid misinformation and confusion in Frederiksberg. Some of the people

I interviewed felt that free speech and, thereby, democracy was under threat:

> You get called tinfoil hats or conspiracy theorists. Just because you have a simple and critical question about face masks, or something else....We should accept that there is a minority that believes something other than the huge majority. They should be heard. They should always. But that has stopped with this coronavirus. I think it is a democratic problem. (Interview 3)

Many people I interviewed and talked to expressed anger and disappointment with the recent developments of *Frederiksberg Bladet* and its lack of engagement with local politics and other important matters due to the newsroom cutbacks. On several occasions, I wrote reflections in my field notes on the local news I would have liked to have been informed about, but for which I could not find any information in the local public sphere. This is related, for instance, to the consequences of the pandemic for local businesses. Frederiksberg is famous for its many small shops, cafes, and restaurants. How did the lockdown affect them? Who survived, and who had been forced to shut down permanently?

6.3. Diffusion of Covid-19 Information in Ringwood Media

The content analysis of *Ringwood and Fordingbridge News* shows that 18 out of the 210 stories (8.5%) published during the spring of 2021 in the nine editions analysed were related to the Covid-19 pandemic. This made the pandemic the fourth most popular topic in the newspaper. However, most of these stories (14) were letters written by citizens. Only one Covid-19 story had been written by the publisher himself. Local politicians or public servants did not use the newspaper to convey any Covid-19-related information.

Regarding the local Facebook groups and pages, Covid-19-related posts comprised 3.2% of the content, far less than in Frederiksberg. Groups were much more dominant in the Ringwood Facebook domain than in Frederiksberg: Posts in groups accounted for 77% of all posts in Ringwood, compared to 53% in Frederiksberg. However, discussions in the groups revolved around the pandemic to a very limited extent (only 2.1% of all posts, see Figure 3). The town council's Facebook page was dominated by Covid-19-related posts, implying that this local authority found it important to inform about the pandemic.

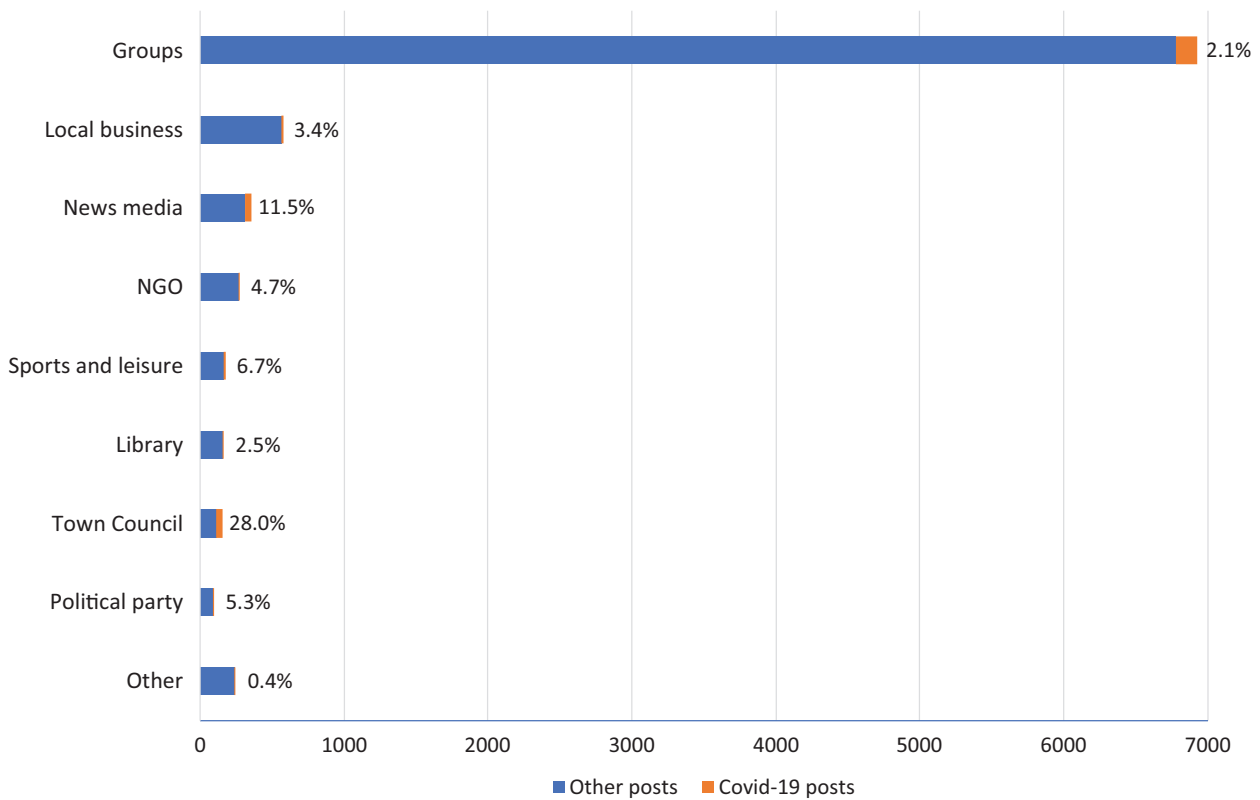**Figure 3.** Number of posts in Ringwood Facebook groups and pages, January–July 2021 (*N* = 8,978). Notes: Percentages are shares of Covid-19-related posts per category; the Groups category is the four biggest public local Facebook groups; news sites are predominantly the *Ringwood and Fordingbridge News* Facebook group and the page of the newspaper, *The Forest Journal*, located in the city of Salisbury north of Ringwood.

There were no significant differences between Covid-19-related posts and other posts regarding types of interactions, apart from one thing: When local businesses posted something Covid-19-related, these posts were more than three times as likely to be liked than other types of their content. None of the 12 most engaging Covid-19 posts (regarding likes, shares, and comments) were posted by local authorities or the *Ringwood and Fordingbridge News*. The most interacted with of all Covid-19-related posts was published by a local business, a wine bar, which on 28 July 2021 announced on its Facebook page that it had won a travellers choice award and thanked everyone for their support during the pandemic.

6.4. Misinformation and Free Speech in Ringwood

The comparatively low engagement with the pandemic in the mediated public sphere of Ringwood starkly contrasts how dominant it felt when living there. A national lockdown had just been imposed when I moved to England in January 2021. People in Ringwood moved in big circles around one another outside, and the feeling was that the pandemic posed a much bigger crisis than in Frederiksberg. It, therefore, felt strange that the mediated local public sphere did not reflect this.

In my field notes, I wrote down several reflections on the news I missed concerning the local effects of the pandemic. When restrictions were lifted in the UK, and non-essential shops, pubs, and restaurants were allowed to reopen, I was curious to know who had survived and what kinds of trouble they had experienced. And how were local schools preparing for the reopening, given the face mask policy and the testing regime they were supposed to enforce? Did parents, kids, and teachers look forward to the reopening? How had the crisis affected them all? (field notes, weeks 6 and 11, 2021). I couldn't find any such news stories in the Ringwood public sphere.

The Nvivo coding matrix of field notes and interview transcripts reveals that thematic connections were quite similar to those in Frederiksberg. Codes related to moderation, free speech, misinformation, and social control often co-occured with Covid-19 topical codes. But these themes played out differently in Ringwood, where critical views on, for instance, restrictions and vaccination were rarely seen. The most important public arena for local Covid-19 related information was a Covid-19 assistance Facebook group set up by a few local politicians at the start of the pandemic. This group became popular, with more than 3,000 members, and it played an important role in helping people in the community. The initiator and main administrator of the group explained the need to censor posts to minimise misinformation:

Informant: We were very keen to focus on accurate information. And we did have misinformation. People, because of the way that Facebook group works,

people joined and then suddenly started posting misinformation, and we had to remove it and kick them out. So basically, we were very actively moderating.

Interviewer*:* What would that type of misinformation typically be that resulted in you kicking people out?

Informant*:* It was everything from just speculations about things that really wasn't helpful, right up to some really quite hard anti-vax type, or some conspiracy type theories….So we had everything. And that was just dealt with and removed. Straight away. (Interview 26)

Critical comments related to Covid-19 restrictions or vaccination were also removed on Nextdoor. I had set up my Nextdoor account to send me weekly updates with top new posts and discussions from Ringwood neighbourhoods, and on several occasions, I experienced that critical Covid-19 posts, which were in the email notification, had since been removed from the social media platform by the time I clicked on them.

Not everyone was happy with the strict moderation and lack of critical debate regarding the handling of Covid-19. The following interview quote, where the informant was asked about their thoughts on free speech, reflected the opinion of several people I interviewed and talked with:

Before Covid, I thought it [conditions for free speech] was pretty good. Now, I think that if you exercise your free speech, or you go against the narrative, you´re labelled very quickly by a lot of different organisations, and people are being conditioned to ostracise these people now….So free speech is disappearing. (Interview 25)

Several people I met felt there was no point in publicising their views, as they were certain they would be censored (field notes, week 19, 2021). One producer of a local non-journalistic media outlet answered the following when asked if he had considered giving voice to someone critical towards vaccination: "If I were to cover the Covid vaccination story…I'd love to do it, but I would lose all my friends" (Interview 25).

7. Discussion and Conclusion

RQ1 asked what possibilities the people of Ringwood and Frederiksberg had to stay informed about the local handling of the Covid-19 pandemic. The findings demonstrate that the two local newspapers, which both can be characterised as "ghost newspapers," were not concerned with bringing pandemic-related local news. *Frederiksberg Bladet*, which had followed what Abernathy (2020) identified as the second path towards becoming a ghost newspaper (implying a dramatic cut-back of editorial staff), had only one journalist left to cover the

community. Coverage of the pandemic was, therefore, extremely scarce. Ringwood & Fordingbridge News, on the other hand, had followed what can be identified as a third path towards becoming a ghost newspaper, as this paper had been established as a paper without editorial staff from the very start, as a response to other, larger local papers pulling out. There was, therefore, no editorial coverage of the pandemic, or any other topic for that matter, in this local paper. Both places thereby resemble news deserts because they lacked coverage from professional journalism. However, this does not mean that Ringwood and Frederiksberg were without news, as people had other means to stay informed about the local handling of the pandemic (and other issues, for that matter), the most important being local Facebook groups and pages. In Frederiksberg, local politicians and authorities had to a large degree, professionalised their public communication, with all local councillors having Facebook pages, which they used extensively to communicate about the pandemic in addition to writing letters to the editor of *Frederiksberg Bladet*. This was not the case in Ringwood, where local politicians and authorities were less engaged in the mediated local public sphere.

One of the concerns with the rise of news deserts is that when communities are not covered by journalists, misinformation will thrive (Pickard, 2019). Places without local journalism were exposed to a double misinformation threat during the pandemic, as the "infodemic" also constituted such a threat. RQs 2 and 3 asked whether misinformation was a problem in Ringwood and Frederiksberg and if free speech had been compromised. The findings show that misinformation regarding Covid-19 was a problem, or at least was perceived as a problem, in both communities. However, the borders between misinformation, critical opinions, and adequate alternative perspectives on issues related to prevention and vaccination were blurry. Moderators of local Facebook groups were powerful actors in defining such borders. Informants in both places expressed concerns over the consequences of the way the pandemic had been handled locally for freedom of speech and, consequently, for local democracy.

This article aimed to investigate the characteristics of local democracy in places left behind by local journalism. I have argued against labelling such communities as "news deserts" because this concept confuses "news" with "journalism." Usher (2023, p. 246) argues that researchers "have a built-in preference for professional, legacy media as the providers of civic information" and that the concept of "news deserts," therefore, risks reflecting researcher bias more than the real state of local public spheres. Places without local journalism are not devoid of news. What characterises the state of local democracy in such places is, therefore, not that they are news deserts. Instead, platform-dependant local public spheres with almost no independent, professionally produced news and information resemble what I chose to label "casual democracies."

The word *casual* has multiple meanings, many of which characterise the state of local democracy in Frederiksberg and Ringwood quite well. First, the "ghost" local newspapers had a casual, bordering on indifferent relationship with important news related to the pandemic. Of course, most news regarding Covid-19 was national in scope, so people in the two communities had access to lots of edited news about the crisis, informing them about key issues such as infection rates, death rates, hospitalisations, and restrictions. However, they did not have access to edited news about the local consequences of the pandemic. For example: How did the crisis affect local businesses and schools?

Second, the moderation of local news in local social media groups was casual, informal, fluid, and at times quite random. Some local social media administrators had formal positions of power in the communities, especially in Frederiksberg, where local politicians and authorities had professionalised their social media communication. Other administrators had achieved important positions more or less by chance, such as the administrator of the fastest-growing Facebook group in Frederiksberg.

Third, at times, the people who shared news and information with the local public spheres through the various, mostly platform-dependant channels available had a casual relationship with truth and credibility. Determining information's trustworthiness, source, and credibility could be hard. However, such concerns have also been raised about journalism, especially local journalism, which has been subject to ongoing critique by scholars and has had an ambivalent relationship with the public regarding its quality, relevance, and trustworthiness (see Nielsen, 2015). Therefore, this kind of casualness is not necessarily new but might be increasingly relevant in communities left behind by local journalism and dominated by platforms.

Finally, the public spheres of Ringwood and Frederiksberg were marked by a casual, almost ignorant attitude towards the differences between public, private, cooperate, and governmental interests. Much of the news available had been produced by people who predominantly served interests other than the public interest, for example, politicians who served the interests of their political parties and careers, officers with local authorities who served the interests of those authorities, and local business, who served their commercial interests. Of course, these actors might also have the public interest in mind, but their agendas could be difficult to spot. However, it should be noted that local journalism does not always serve the public interest and might also cater to the interests and agenda of others, so this is not necessarily a new problem but one which is enhanced when no independent source of local news is available.

This study has demonstrated the necessity of empirically investigating what local public spheres look like in places left behind by local journalism. Future research should take this into account and not assume how local

news and information networks, and eventually local democracy, are affected by a lack of local reporting from professional journalists.

Conflict of Interests

The author declares no conflict of interest.

References

Abernathy, P. M. (2020). *News deserts and ghost newspapers: Will local news survive?* The Center for Innovation and Sustainability in Local Media—University of North Carolina at Chapel Hill. https://dev.usnewsdeserts.com/reports/news-deserts-and-ghost-newspapers-will-local-news-survive

Adserà, A., Boix, C., & Payne, M. (2003). Are you being served? Political accountability and quality of government. *The Journal of Law, Economics, and Organization*, *19*(2), 445–490. https://doi.org/10.1093/jleo/ewg017

Albrecth, J. (2020, August 31). Danmarks største nyhedsørken? Du gætter aldrig, hvor den ligger [Denmark's biggest news desert? You'll never guess where it is]. *Journalisten.dk*. https://journalisten.dk/danmarks-stoerste-nyhedsoerken-du-gaetter-aldrig-hvor-den-ligger

Bento, A. I., Nguyen, T., Wing, C., Lozano-Rojas, F., Ahn, Y.-Y., & Simon, K. (2020). Evidence from internet search data shows information-seeking responses to news of local Covid-19 cases. *Proceedings of the National Academy of Sciences*, *117*(21), 11220–11222. https://doi.org/10.1073/pnas.2005335117

Bergstrom, A., & Belfrage, M. J. (2018). News in social media: Incidental consumption and the role of opinion leaders. *Digital Journalism*, *6*(5), 583–598. https://doi.org/10.1080/21670811.2018.1423625

Collier, J. R., & Graham, E. (2022). Even in "news deserts" people still get news. *Center for Media Engagement*. https://mediaengagement.org/research/people-still-get-news-in-news-deserts

Cotter, K. (2021). "Shadowbanning is not a thing": Black box gaslighting and the power to independently know and credibly critique algorithms. *Information, Communication & Society*, *26*(6), 1226–1243. https://doi.org/10.1080/1369118X.2021.1994624

Darr, J. P., Hitt, M. P., & Dunaway, J. L. (2018). Newspaper closures polarize voting behavior. *Journal of Communication*, *68*(6), 1007–1028. https://doi.org/10.1093/joc/jqy051

Deuze, M. (2008). The changing context of news work: Liquid journalism and monitorial citizenship. *International Journal of Communication*, *2*, 848–865.

Dias Oliva, T. (2020). Content moderation technologies: Applying human rights standards to protect freedom of expression. *Human Rights Law Review*, *20*(4), 607–640. https://doi.org/10.1093/hrlr/ngaa032

GOV.UK. (2023). Cases in England: Coronavirus (Covid-19) in the UK. https://coronavirus.data.gov.uk/details/cases?areaType=nation&areaName=England

Hayes, D. (2021). *News hole: The demise of local journalism and political engagement*. Cambridge University Press.

Hayes, D., & Lawless, J. L. (2015). As local news goes, so goes citizen engagement: Media, knowledge, and participation in US House elections. *The Journal of Politics*, *77*(2), 447–462. https://doi.org/10.1086/679749

Institute for Government. (2022). Timeline of UK government coronavirus lockdowns and restrictions. https://www.instituteforgovernment.org.uk/data-visualisation/timeline-coronavirus-lockdowns

Islam, M. S., Sarkar, T., Khan, S. H., Mostofa Kamal, A.-H., Hasan, S. M. M., Kabir, A., Yeasmin, D., Islam, M. A., Amin Chowdhury, K. I., Anwar, K. S., Chughtai, A. A., & Seale, H. (2020). Covid-19–related infodemic and its impact on public health: A global social media analysis. *The American Journal of Tropical Medicine and Hygiene*, *103*(4), 1621–1629. https://doi.org/10.4269/ajtmh.20-0812

Kozinets, R. V. (2020). *Netnography: The essential guide to qualitative social media research* (3rd ed.). SAGE.

McKee, A. (2005). *The public sphere: An introduction*. Cambridge University Press.

Miller, J. (2018). News deserts: No news is bad news. In *Urban Policy 2018* (pp. 59–76). Manhatten Institute for Policy Research.

Nielsen, R. K. (2015). Introduction: The uncertain future of local journalism. In R. K. Nielsen (Ed.), *Local journalism: The decline of newspapers and the rise of digital media* (pp. 1–25). I.B. Tauris; Reuters Institute for the Study of Journalism.

Niemiec, E. (2020). Covid-19 and misinformation. *EMBO Reports*, *21*(11), Article e51420. https://doi.org/10.15252/embr.202051420

Noorlander, P. (2020). *Covid and free speech: The impact of Covid-19 and ensuing measures on freedom of expression in Council of Europe member states*. Council of Europe. https://policycommons.net/artifacts/1434566/covid-and-free-speech/2055718

Olsen, R. K., Pickard, V., & Westlund, O. (2020). Communal news work: Covid-19 calls for collective funding of journalism. *Digital Journalism*, *8*(5), 673–680. https://doi.org/10.1080/21670811.2020.1763186

Pickard, V. (2019). *Democracy without journalism? Confronting the misinformation society*. Oxford University Press.

Pitard, J. (2017). Autoethnography as a phenomenological tool: Connecting the personal to the cultural. In P. Liamputtong (Ed.), *Handbook of research methods in health social sciences* (pp. 1–17). Springer. https://doi.org/10.1007/978-981-10-2779-6_48-1

Poell, T., Nieborg, D., & van Dijck, J. (2019). Platformisation. *Internet Policy Review*, *8*(4). https://doi.org/10.14763/2019.4.1425

Rocha, Y. M., de Moura, G. A., Desidério, G. A., de Oliveira, C. H., Lourenço, F. D., & de Figueiredo Nicolete, L. D. (2021). The impact of fake news on social media and its influence on health during the Covid-19 pandemic: A systematic review. *Journal of Public Health*, *31*, 1007–1016. https://doi.org/10.1007/s10389-021-01658-z

Ryfe, D. (2019). Journalism and democracy. In K. Wahl-Jørgensen & T. Hanitzsch (Eds.), *The handbook of journalism studies* (2nd ed., pp. 293–306). Routledge.

Schudson, M. (1999). *The good citizen: A history of American civic life*. Harvard University Press.

Statens Serum Institut. (2022). Tidslinje for covid-19 [Covid-19 timeline]. https://www.ssi.dk/-/media/arkiv/subsites/covid19/presse/tidslinje-over-covid-19/covid-19-tidslinje-for-2020-2022-lang-version---version-1---april-2022.pdf?la=da

Statens Serum Institut. (2023). Covid-19-opgørelser [Covid-19 statements]. Covid19.ssi.dk. https://covid19.ssi.dk/overvagningsdata/download-fil-med-overvaagningdata

Steensen, S., & Westlund, O. (2021). *What is digital journalism studies?* Routledge.

Swart, J., Peters, C., & Broersma, M. (2019). Sharing and discussing news in private social media groups. The social function of news and current affairs in location-based, work-oriented and leisure-focused communities. *Digital Journalism*, *7*(2), 187–205. https://doi.org/10.1080/21670811.2018.1465351

United Nations Development Programme. (2020). *Human development report 2020: The next frontier—Human development and the anthropocene*. United Nations Development Programme. https://hdr.undp.org/system/files/documents//hdr2020pdf.pdf

Usher, N. (2023). The real problems with the problem of news deserts: Toward rooting place, precision, and positionality in scholarship on local news and democracy. *Political Communication*, *40*(2), 238–253. https://doi.org/10.1080/10584609.2023.2175399

Van Aelst, P., Toth, F., Castro, L., Štětka, V., Vreese, C. D., Aalberg, T., Cardenal, A. S., Corbu, N., Esser, F., Hopmann, D. N., Koc-Michalska, K., Matthes, J., Schemer, C., Sheafer, T., Splendore, S., Stanyer, J., Stępińska, A., Strömbäck, J., & Theocharis, Y. (2021). Does a crisis change news habits? A comparative study of the effects of Covid-19 on news media use in 17 European countries. *Digital Journalism*, *9*(9), 1316–1346. https://doi.org/10.1080/21670811.2021.1943481

Wahl-Jorgensen, K. (2019). The challenge of local news provision. *Journalism*, *20*(1), 163–166. https://doi.org/10.1177/1464884918809281

Westlund, O., & Ghersetti, M. (2015). Modelling news media use. *Journalism Studies*, *16*(2), 133–151. https://doi.org/10.1080/1461670X.2013.868139

Williams, A., Harte, D., & Turner, J. (2015). The value of UK hyperlocal community news. *Digital Journalism*, *3*(5), 680–703. https://doi.org/10.1080/21670811.2014.965932

World Health Organization. (2020). *Understanding the infodemic and misinformation in the fight against Covid-19* [WHO Fact Sheet]. World Health Organization. https://iris.paho.org/bitstream/handle/10665.2/52052/Factsheet-infodemic_eng.pdf?sequence=16

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Article

Local News Deserts in China: The Role of Social Media and Personal Communication Networks

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Abstract
The field of local news is often associated with news deserts, commonly defined as geo-based communities without newspapers or other legacy media as providers of locally oriented news and civic information. This phenomenon is expanding in global society due to the diminishing presence of newspapers at moments of accelerated digitization. This study examines the multiplex nature of news deserts in rural and suburban areas in China. Data were collected through a multi-methods approach combining two focus groups and 44 semi-structured in-depth interviews. Patterns of engagement among interviewees reveal that smartphone-based social media applications and digital platforms function as viable sources of news, and incidental exposure to news has become the norm of digital news use. Government-orchestrated convergent media services and WeChat channels are preferred choices by most research participants for local news. We argue that a media ecology perspective may be a productive approach to understanding community news and local newspapers.

Keywords
China; community news; Convergent Media; media ecology; news desert; social media; WeChat

Issue
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1. Introduction

Local news plays a vital role in community building, and a vibrant local news ecology fosters social cohesion and collective identity. In this regard, the diminishing presence of newspapers in an ever-expanding list of communities is a global cause of concern (Gulyas & Baines, 2020). In China, the boom of the newspaper industry from the 1990s to the early 2000s has been followed by a new era of accelerated decline over the past 15 years, and this downward trend does not seem to be reversible. The expanding news deserts in the wake of these developments have significant implications for civic, communal, and social engagement in these affected communities.

This article examines the multiplex nature of the expanding news deserts in suburban and rural China in the absence of local newspapers and interrogates the emerging role of smartphone-based social media in fulfilling communicational needs and reshaping the information ecology of residents in these communities. Our multi-methods approach combines focus groups with semi-structured in-depth interviewees in multiple suburban (places relatively close to cities) and rural areas (remotely located from cities). The research questions pertained to two broad areas: First, how residents in these areas obtained news in general and news about their local communities specifically in regard to any informational channel or venue; second, how users engaged various platforms of social media in the consumption of local and non-local news. The research findings were contextualized in the specific information ecology of China as well as prevalent academic deliberations of news deserts across societies overall.

2. Review of Literature

2.1. Local News Deserts in the Era of Social Media

Historically, local journalism both as a practice and a product has played a pivotal role in fostering social cohesion and integration that bonds people together with the community they reside in (Aldridge, 2007; Jakubowicz, 2007). Besides providing timely and accurate information to citizens tied to a specific socio-geographic area, local news also serves as a viable forum for the expression of local views on issues of community concern, including representing communal values and interpreting global and national news events from a local angle (Franklin, 2006). The structural transformation of the media ecosystem since the late 1990s driven in large part by the internet and digital media, however, has put local journalism on a steady decline. In particular, the ubiquity of social media and personal communication networks has drastically changed how people get news and other information, how they stay in touch, and how they entertain themselves. At a time when "readership is eroding, advertising declining, and overall revenues plummeting," the "practical feasibility" and "commercial sustainability" of print newspapers have reached a level of existential crisis (Nielsen, 2015, p. 3).

Academic understanding of the field of local news and journalism has underscored both the societal and geospatial aspects of the news-making process (Gulyas, 2021). One particular term that has gained traction lately is news desert, which has been popularized by Abernathy, through a series of reports on The Expanding News Deserts Project at the University of North Carolina Chapel Hill. Initially defining a news desert as "a community without a newspaper," Abernathy (2018, p. 96) subsequently expanded it to "include communities where residents are facing significantly diminished access to the sort of important local news and information that feeds grassroots democracy." News deserts are found to be associated with higher poverty rates, food deserts, low income, low education, and low voter turnout. Highlighting the multi-dimensional nature of the ecosystem, Ferrier et al. (2016, p. 221) describe the phenomenon as *media deserts*—"a geographic locale that lacks access to fresh, local news and information." Ferrier et al.'s definition pays attention to not just the content layer (fresh daily news) but also the conduit (e.g., access through broadband and mobile devices) and code (e.g., algorithms and curation biases) layers. As Usher (2023) notes, prevalent discussion of news deserts hinges on a built-in preference for professional, legacy media as suppliers of local civic news at the downplay of alternative media formats such as social media and digital-first outlets, which certain communities may be more likely to turn to for local information. Worthy of note is that news/media deserts are not just found in the US or Western industrialized countries but are consolidating into a global trend (e.g., Astuti & Irwansyah, 2022; da Silva & Pimenta, 2020).

The affordances and reach of social media have been seen by many as presenting great potential to counter the onslaught of digital disruption in revitalizing journalism. One such model is Bruns' (2018) social news media network, which is triumphantly proclaimed to bridge "multiple publics" and brew "divergent perspectives" because users':

> News sharing activities not only involve the horizontal passing on of information from one social media public to another but also the vertical sharing of information gleaned from social media spaces to face-to-face communication and other forms of interpersonal engagement. (Bruns, 2018, p. 363)

In a similar vein, Marchi and Clark (2021, p. 300) contend that social media-based connective journalism promotes political awareness, youth citizenship, and civic action among young people through "sharing personal feelings, experiences and meaningful news with their personal networks."

Despite their omnipresence, social media-led digital networks, many have argued, create new formations of inequalities. For example, Helsper (2021) dissects various forms of socio-digital inequalities along dimensions of traditional socio-economic, socio-cultural, and individual gaps. These inequalities are tantamount to "social media news deserts" that, driven mostly by access, literacy, and engagement styles, disadvantage certain groups in society to deprived exposure to important political, public affairs, and social information (Barnidge & Xenos, 2021). As incidental exposure becomes the primary way of directing more and more people to news content (Thorson, 2020), the inequalities may be widening through a Matthew effect in social media news use due to the relative enrichment of some and the impoverishment of others as a result of the combined effects of user preferences and dispositions, social networks, algorithmic values, and platform design and features (Kümpel, 2020). One critical dimension of digital inequalities is digital footprints, defined by Micheli et al. (2018, p. 243) as "the aggregate of data derived from the digitally traceable behavior and online presence associated with an individual." The footprints include, among other things, active content creation and sharing, associated user activities, and digital behaviors by related others. As the commercialization of social media platforms deepens, it is easy to imagine the ranking value of one's purchase and consumption power in driving digital inequalities with regard to content curation and redirection.

2.2. Newspapers, Television, and New Media in China

Newspapers have figured prominently in the various conceptualizations of news deserts. A brief overview of the historical development of China's newspaper industry is therefore necessary for the assessment of news deserts in China. The restructuring and reform of (print and

broadcast) media has been an important part of the overall economic reform initiative since 1978. Starting in the 1980s, a major measure in media reform has been the marketization of media operations from the previous state-supported model to one that hinges on subscription and advertising, thus spurring cutthroat competition for readership and ratings. In their sustained efforts to respond to audience demand and maintain a delicate degree of independence from the state's most preferred ideological stance, the Chinese media have been able to offer diversified news and entertainment content to a large audience base and enjoy a relatively high level of credibility among the general public; meanwhile, market-oriented media provide a viable mechanism for the authoritarian state to monitor public opinion and help the party-state maintain stability and legitimacy (Stockmann, 2013). The media market witnessed a sustained period of rapid growth and steady expansion into the early 2000s. In 1978, China had 180 newspapers and fewer than 400 radio and television stations in the country; by 2012, there were 1,918 newspapers and 2,579 radio and television stations (Shao et al., 2016).

After its circulation peaked in 2012, the Chinese newspaper industry has been on a sharp downward trend in both its readership and advertising revenues. The total number of newspaper titles shrank from 1,918 in 2012 to 1,810 in 2020, while advertising revenues experienced a precipitous drop with its 2021 income at 1/15 of what it was in 2011 (Cui & Chen, 2022). In responding to the changing media ecosystem, Chinese newspapers embarked on a new round of innovative reform initiatives in boosting revenue sources and restructuring organizations, including reconsolidating newspaper groups, partnering with the state and commercial entities for direct and indirect subsidies, strengthening side-line businesses, redefining their daily operations from journalism-focused to (information) service-focused missions, and, more importantly, repurposing content for mobile delivery (Fang & Repnikova, 2022; Wang & Sparks, 2019).

Unlike newspapers, Chinese television has maintained a conspicuous presence in public life. For example, ratings of television watching in 35 major Chinese cities in 2021 show that 14.5% of the audience watched news on television during the 7-pm-to-midnight period; this was a drop from 16.8% in 2020 (which was a historical record high due to nationwide lockdowns) but was higher than the 10–11% range in the previous decade (Wang, 2022). However, there is considerable variation from channel to channel in terms of audience share. China Central Television, the only national network, draws 43% of the news audience, followed by provincial satellite channels (27.2%) and provincial terrestrial channels (18.5%). By contrast, news on metropolitan channels is only watched by 8.1% of the news viewers, while the rest of the channels, which include operations by local broadcasters, pick up only 3.2% of the news audience (Wang, 2022). Because national and provincial tele-

vision networks possess more financial and technological resources in news production, it is no surprise that they are leaders in attracting news audiences. On the other hand, metropolitan and regional television stations are heavy carriers of local news, and their diminished presence in news consumption does not bode well for patching up the local news deserts.

In response to technological innovations in the television market, one strategy spearheaded by national and provincial networks is the "One Cloud Multiple Screens" service model, which integrates television, radio, online media, social media, and apps into an AI-operated, cloud-based content delivery system (Central Television Research, 2023). This shift from big screen (i.e., television) to multiscreen delivery is necessitated by the changing media ecosystem in which more and more audience members are consuming video content on smartphones and other hand-held devices. Indeed, as the Central Television Research (2023) report acknowledges, the leading areas of growth in advertising revenue in 2009–2021 have been related to mobile and online video use (including both news and entertainment programming). The National Radio and Television Administration takes the lead in overseeing the implementation of one such nationwide initiative called the Convergent Media project. The idea is to provide technological and financial support to county-level and township-level authorities in mobilizing television, print, and digital media into an integrated online site plus a dedicated smartphone app for local news and civic information.

The digital strategies of delivering news online have been facilitated immensely by the rapid emergence of China as a global tech power in the new millennium. Since the 1990s, the Chinese state has implemented a series of aggressive strategies to foster techno-nationalist ambitions and overt cyber sovereignty goals through ICT innovation and development (Keane & Chen, 2017). Increasing rivalry between the US and China in recent years has catalyzed the rise of state platform capitalism, Rolf and Schindler (2023) argue, in which the distinctive affordances of digital platforms such as Facebook, Twitter, and WeChat empower the US and China "with new potentialities for carving out nationally centred digital empires and leveraging extra-territorial power" (Rolf & Schindler, 2023, p. 6) in geopolitical contestation. Along these lines, WeChat, the most popular application of interpersonal networking in China, has transformed from "platformization" to "infrastructuralization" as "a meeting ground for both the business ambitions of internet companies and the infrastructural ambitions of the Chinese authorities" (Plantin & de Seta, 2019, p. 259). Besides state policymaking and grand strategization, the huge Chinese market size provides indispensable leverage in the domestic ecosystem that most countries do not possess in aligning state interests with multifarious infrastructural engagements to economic gains. As of June 2022, China's internet population (i.e., people with access to the internet) reached 1.05 billion

(out of an estimated total population of 1.4 billion), with 99.6% of them surfing the web on smartphones (China Internet Network Information Center, 2022).

The proliferation of social media has drastically reshaped the contours of the Chinese media ecological system. First, the explosive penetration of social media platforms creates plentiful opportunities for conventional news media and journalists to disseminate news and amplify reach (Jian & Liu, 2018; Xu, 2022). Second, social media allows a viable space for news start-ups to practice a brand-new genre of news service by venturing into areas of coverage otherwise unfulfilled by the official media while maintaining autonomy from the state and achieving "negotiated professionalism" (Deng & Yan, 2022). Additionally, user-centered production in social media has incubated an "innovative repertoire of contention" (Yu et al., 2023) and heterogenous discourses (Wu & Fitzgerald, 2021) on issues of public interest. Citizen journalism and online opinions in Chinese social media may influence the agenda of traditional media as well as government policymaking (Luo & Harrison, 2019).

2.3. Research Goal and Questions

The purpose of this research is to investigate the evolving landscape of news deserts in China in an era of media ecology dominated by smartphone-based social media communication, which is paralleled by a continuous diminishing and decline of the newspaper—both as a vehicle of community news and as an anchor of collective identity. We define news deserts as geographically bound communities where there is a lack of presence by legacy media such as the newspaper and television as regular providers of locally based news and perspectives. Our examination of news deserts is driven by these overall questions:

RQ1: How do residents in these areas obtain news about the outside world in general and their local communities in particular?

RQ2: How do they engage various platforms of social media in the consumption (as recipients) and production (as originators) of both local and non-local news?

RQ3: What major outlets (from both legacy and digital media platforms) serve as local news sources for the residents in such areas?

Our focus is on not just the quantity but also the quality and the nature of news that is involved in these processes.

3. Methodological Approaches and Data

We adopted a multi-methods approach combining focus groups and individual in-depth interviews in gathering data to address the above questions. Although focus groups have become a well-established qualitative technique in social research (Krueger & Casey, 2015), some caution that focus groups may suppress or silence voices concerning "private and isolating experiences" from marginalized or stigmatized individuals (Michell, 1999, p. 46). In-depth interviews, which are considered the gold standard of qualitative inquiry, work best in reaching out to targeted individuals one-on-one to explore personal experiences. On the other hand, user interaction in focus groups can add depth to the inquiry and tap into aspects of the phenomenon otherwise unavailable from interviews. Thus, combining both approaches has been proven to be effective in triangulating data and perspectives for purposes of data completeness and confirmation (Lambert & Loiselle, 2008).

Our research was conducted during a period when the Covid-19 pandemic continued to be a public health hazard, and varying measures of lockdowns and travel restrictions were still in place in most regions in China. Moreover, the wide span of geographic range with the pool of our interview participants posed extra challenges for conventional face-to-face interviews. We therefore resorted to an online modality for completing the interviews. As Żadkowska et al. (2022, p. 2) observed, online interviews may be "more equipped" than traditional approaches and may "make it the first not the second-best choice" in gathering certain types of data, which we believe aptly describes this study's context and goal setting. Because they were intended to complement and add interaction dynamics to the interview data, the focus groups were conducted in person and on-site.

3.1. Research Design and Procedure

As the socio-geographic location was pertinent to our interest in local news deserts, we limited the scope of our inquiry to residents in suburban and rural communities across China without the presence of local newspapers. A local newspaper is defined as a conventional publication that is printed at least weekly and specializes in covering news in the geo-location where it is based. As an illustration, one locality fitting the profile of and included in our research (i.e., communities without local newspapers) is Xishui, a county-level city in China's Southwest Guizhou Province. With a population of 717.5 thousand (Wikipedia, n.d.), Xishui does not have a newspaper in its territory. However, Xishui is an administrative unit of Zunyi, a prefecture-level city that publishes its newspaper *Zunyi Daily*. In turn, Zunyi is under the jurisdiction of Guizhou Province, which runs its provincial paper *Guizhou Daily*. In the Chinese press system, *Zunyi Daily* is considered a local newspaper to Zunyi but not Xishui, even though the paper may occasionally cover major news events in the latter. *Guizhou Daily*, on the other hand, is accountable to the provincial authorities and reports major news across the whole province. In order to streamline the interview process and optimize

interviewer–interviewee communication, we adopted a stratified, snowball sampling approach in identifying candidates for in-depth interviews. The primary consideration was to cater to the language needs of the specific sociodemographic characteristics of our targeted population. There are hundreds of local dialects across China and it can be difficult for people to communicate in different dialects. This is a potential barrier for the vast majority of residents in rural and urban areas in many places because most of them are not well-educated to speak fluent Putonghua (the standard spoken Mandarin).

Our stratification strategy started with selecting potential interviewers representing different regions in China. We took advantage of a metropolitan university in southeastern China, which enrolls students from across the country. We obtained the roster of junior and senior students from the media and communication program and selected 40 students who met the following criteria: passed a required interviewing-and-reporting-for-the-media course with a B or above grade and came from a rural or suburban region that fits our preset geographic profile and had the proficiency in speaking the dialect used in that region. We then reached out to the selected pool of students as potential interviewers for the research. After being briefed on the scope and the expected responsibility of their participation, those who expressed interest were admitted into a few paid training sessions on interview skills and logistics. Student trainees were evaluated through mock-up interviews and a total of 12 student researchers were chosen as finalists. The researchers developed a unified set of interview questions and then worked individually with each student researcher in making appropriate adaptions toward the dialectical particularities of the respectively targeted regions.

Snowballing was used in sampling interviewees following this process. Each student researcher worked with the faculty supervisors in identifying three to four acquaintances in the home regions they represented, who were each asked to name two to four candidates along predefined sociodemographic lines as potential interviewees (who must be regular residents, not transients, of the locality). Nominated candidates from all 12 student interviewers were aggregated into one master list (totaling 105), and 60 were chosen as final interviewees driven by consideration of maximal socioeconomic and regional representation. We followed the well-tested "invitation–dealing with technology–transparency–designing the virtual interview space" process as developed by Żadkowska et al. (2022) to carry out the interviews. The difference is that instead of Zoom, we used WeChat, the most popular real-time audio and video messaging platform in China. Of the 60 finalists solicited for WeChat video chat calls, 44 responded positively and completed the interviews. Student researchers conducted the interviews in local dialects, with one faculty researcher present in the background but not visible to the interviewees so as to not distract or disrupt the flow of the conversations. The audio part of each interview was recorded and subsequently transcribed for further analysis. Each student researcher was compensated for their time and effort at the conclusion of the interviews. Sample characteristics were summarized in Table 1.

For the focus groups, we utilized a "nomination" sampling approach, which Krueger and Casey (2015, p. 202) call "the most effective strategy in community studies." We identified a few well-connected individuals and mentioned specifications to them for nominees in the local community as potential participants. We chose one county in Southwestern China, which is suburban in setting, for the site of one focus group and selected a rural community in the same province for the other focus group. One faculty researcher moderated the focus group discussions, assisted by a student researcher with expertise in local dialects and customs. The focus group discussions were recorded and transcribed. Six of 10 invitees showed up and completed the group-based discussions for each focus group.

3.2. Data Analysis

We followed the logic of grounded theory coding as specified by Charmaz (2014) in data analysis. The multi-methods approach offers us one great vantage point. We started by analyzing the two focus groups and gained a solid understanding of the dominant opinions and typical practices. Next, we performed "open-ended coding" (initial coding) of each interview by naming, labeling, and segmenting individual experiences, which were then compared with themes in the focus group discussions to crystalize into categories and patterns that meaningfully describe the residents' overall experiences. The phase of "focused coding" allowed us to "sift, sort, synthesize, and analyze" the total corpus of data into emergent conceptual themes and user tendencies Charmaz (2014). In the latter phase, we also paid attention to deviating and idiosyncratic experiences of the interviewees.

4. Findings

4.1. Newspaper Encounter

Even though the geographic sites we included in our research are all without local newspapers, it does not necessarily mean that they are totally devoid of *all* newspapers. There is an obvious spillover effect with national and regional newspapers being distributed to most locations. Three types of papers have been mentioned in the interviews (as order ranked): *People's Daily*, which is the propaganda arm and reports the views and policies of the Central Committee of the Chinese Communist Party; the respective provincial newspapers in which the interviewees reside (e.g., *Yunnan Daily* for residents in a local town we interviewed in that province), which is the official publication for the provincial committee of the Chinese Communist Party; and one or

Variable	Variable trait	Value
Age	18–19	3
	20–29	11
	30–39	11
	40–49	9
	50–59	5
	60 and above	5
Gender	Female	21
	Male	23
Locality	Suburban	20
	Rural	24
Geographic representation	Provincial regions	9
Occupation	Technical/mechanical worker	6
	Educator/banker	5
	Farmer	5
	Salesperson/business employee	5
	Freelance worker	4
	Government clerk/village leader	4
	Housewife	4
	Retiree	4
	Unemployed	4
	Medical worker	3
Education	Elementary school	5
	Middle school	11
	High (secondary) school	12
	Two-year college (associate degree)	9
	Four-year college (bachelor's degree)	7

more metropolitan papers from the nearby metropolis, which tend to be more entertainment-oriented. These papers are available, even in most remote urban villages, because the Chinese Communist Party organizations from the villages are required to subscribe to the *People's Daily* and the provincial party paper.

Over half of the interviewees said they never or seldom read any print newspaper at all. Two commented to the effect that "I don't know that newspapers still exist." Five interviewees mentioned that they used to read newspapers but quit a few years ago; four of them stopped newspaper use due to lack of interest, and one 77-year-old retiree indicated that he remained interested in reading, but his declining vision no longer allowed him to read. Eight residents said they only occasionally read newspapers, and they would do this during fragments of leisure time when there was ready access to a newspaper. So this chance encounter with newspapers might trigger snippets of reading. Only two admitted to being avid newspaper readers, and their regular use of multiple newspapers was motivated by different reasons: A 42-year-old mechanical engineer attributed this to his personal interest (in being a "news junkie") and a 51-year-old village head relied on the newspapers to be informed about latest state and provincial policies and developments.

4.2. Television and Radio News

The pervasiveness of television broadcast was easy to notice as only one (a 48-year-old housewife) reported not having a TV set at home. Easy access to television, nevertheless, is not tantamount to use, as 16 participants said they rarely watched TV, if ever. These include people in certain professions, such as truck driver, medical doctor, government clerk, farmer, or salesperson, with lack of interest being the most cited reason, followed by not fitting one's routine schedule (i.e., air time in conflict with professional or menial tasks). Slightly over half of the non-TV users indicated that, from time to time, they resorted to accessing similar programming on their smartphones at a pace and time of their convenience.

As might be expected, television use was heavily entertainment-oriented: 15 interviewees reported watching mostly teledramas, movies, and entertainment series over other programs, while 10 indicated television news was a draw to them more than anything else. TV use by three men was almost exclusively sports-focused. As for news, the national TV network China Central Television channels were the preferred choice by most, followed by provincial cable channels. Any news that was watched then was mostly either national news, world news, or news at the provincial level; local news

rarely would be featured on television, as confirmed throughout the interviews. Any exposure to local news was accidental, typically at moments when the local channel was on during news hours. Radio was only mentioned by five as an occasional source of news when it was turned on in the car or as a background companion. There was no indication that there was any intentional effort to dial the radio for the news, thus news listening was clearly incidental.

4.3. Social Media and Digital News

It is easy to notice that smartphone-based applications and platforms have become mainstream in news consumption. All of the interviewees said they receive news on their smartphones, although the degree of news engagement varies substantially. We noted two distinct types of news use patterns. On the one hand, there were those (close to half of the participants) who rather passively received news from either reposts by friends or other sources on their social media, and their exposure to news on social media was mostly indiscriminate, meaning that there was not really any particular category of news they avowed an interest in. They said they only occasionally took the effort to search for news online. On the opposite end, a slight majority of the interviewees reported actively seeking news from multiple sources, and they typically subscribed to multiple news feeds both on WeChat and via third-party apps. They were also inclined to repost news from time to time on their social media.

Three types of apps and services that specialize in news delivery were cited frequently. First, many used smartphone apps developed and operated by newspapers that send out real-time updates and news reports. The apps by *People's Daily*, provincial newspapers, and metropolitan papers were the most commonly mentioned among the interviewees. Second, two-thirds of the interviewees used WeChat subscription channels (called WeChat public channels) that offer news and information feeds by newspapers, government entities, and various institutions and organizations. These channels, which are embedded within WeChat and free to subscribers, are a common venue for mass circulating information and are very popular among Chinese users.

Third, a few content-creating and sharing apps have become regular sources of information in China, as testified in our interviews. The apps frequently mentioned by the interviewees include Douyin (the Chinese domestic counterpart of TikTok), Toutiao (a news aggregating application), Xiaohongshu (an Instagram-like platform in China), and KuaiShou (a short-video sharing mobile app). Moreover, a number of individuals reported using Baidu (China's search engine, with its own news page, similarly modeled like Yahoo News), Tencent's subsidiaries Sohu (https://www.sohu.com) and QQ (https://www.qq.com), and SINA (http://www.sina.com.cn) as well as newspaper websites. Noticeably, Sina Weibo, China's Twitter counterpart, was only mentioned by about a quarter of the interviewees as a regular source of news, showing the declining presence of Weibo in the Chinese news-making process. This pattern conforms to the national trend identified in other studies pointing to the diminished role of Sina Weibo in news distribution and its shifting focus on entertainment-oriented permutations (Jia & Han, 2020).

It is worth mentioning the specific role of one particular type of social media influencer—called 流量明星 in Chinese ("viral stars," as these people rely on cranking up the volume of traffic in social media to make a living)—in spreading information in the virtual space. One common strategy for these viral stars to grab audience attention is to spice up trending topics. Because these social media operatives do not have much original news, they have developed cunning ways to stir the pot with hot-interest news events by adding often unsubstantiated titbits, sensational commentaries, and speculative assumptions. In the process of spreading such information, they magnify public awareness of these events. Over half of our interviewees reported receiving news-related information from such micro-influencers on a regular basis. One such story that came up in our interviews was the chained woman in a rural village in Feng County of Jiangsu Province (Cao & Feng, 2022). The original video by the vlogger generated close to two billion clicks and led to tens of thousands of follow-up posts by other social media writers. Besides this event, other events that were followed closely by many of our interviewees include the US–China trade war, the Russian war in Ukraine, US sanctions of Huawei (as well as the detention and later release of Huawei's CIO Meng Wanzhou), among others. This user-created space is fertile ground for conspiracy theories, fake news, and nationalist narratives. Four interviewees specifically mentioned the "news" they read in WeChat on how the US military personnel allegedly exported the Covid-19 virus to Wuhan, and quite a few shared with us the fake news of purported recipes using traditional Chinese medicine and certain over-the-counter drugs to cure Covid-19.

Finally, six interviewees expressed their appreciation for the ability to carve out a path for news and information that aids their professional and hobby pursuits such as cooking, automobiles, mechanical automation, sports, sales promotion, and construction. As an example, a construction worker said that by compiling various sources of local and adjacent construction markets and needs, he was able to help himself and his co-workers constantly move to good-paying jobs in the area.

4.4. Local News

Local news is still important in the lives of most participants: 36 interviewees said they often or regularly followed local news, while eight reported not being interested. Sources of local news include the following venues. First, the most often mentioned channel

was WeChat public accounts operated by local governments, which frequently publish news and community-related information. Another popular source for local news is the Convergent Media platform mentioned in the literature review. While the initiative started at the country-level cities about a decade ago, most township government administrations have also joined this effort in recent years, and most towns are now running their own convergent media operations. As an example, all four interviewees from Zhenxiong mentioned using Zhenxiong Microlife, a convergent media app by Zhenxiong Township in Yunan Province. Similar platforms in different localities were mentioned as viable local news sources by most of the interviewees. In terms of distribution, the majority of the interviewees mentioned gaining exposure to local news on the Convergent Media outlets via reposting by WeChat circles, a popular way of sharing information with WeChat social networks.

Traditional interpersonal networks maintain their relevance in the circulation of local news, especially in rural communities. Places like tea houses, town squares, convenience stores, and even street corners were all mentioned in the focus groups as popular sites for communal news sharing. As one participant remarked: "Any news of the day spreads in no time from this side to that side of the street in town." In particular relevance to local news, our interview data revealed a pattern of the two-step flow process of information dissemination among the local audience as identified by Lazarsfeld et al. (1944) 80 years ago: Some news was mentioned by many interviewees as spreading from people who learned it first typically in social media networks to others through formal and informal encounters that took place in the workplace, community gathering places, and over dinner tables. However, social networks' local news communication is more of a reincarnation than a revival of the old two-step flow; dynamics in social media have created muti-layered intermediaries connecting sources to an amplified base of online and offline followers.

5. Discussion and Conclusion

Declining readership and loss of advertising revenue have brought unprecedented challenges to Chinese newspapers. The increasing number of communities without newspapers or other legacy media as a reliable source of local news has important implications for the evolving media ecology. At the same time, the rapid diffusion of smartphone technologies and personal communication networks has drastically changed the modality of news and information delivery. In the communities we studied without local newspapers, there are really no discernible "news deserts," as various forms of news are prevalent and plentiful, ranging from news feeds by national and provincial newspapers to locally based news reporting applications. Findings from our research demonstrate that chance encounters were still a common way for many users to casually pick up a print news-

paper from time to time, but there is no doubt that mobile access to newspaper content has taken precedence, especially among younger demographics.

We argue that an ecological perspective of news deserts as well as the future of community media should be a constructive approach to understanding news in the digital environment and contemplating actions and solutions. Media ecology provides a conceptual framework that looks at media as "'species' that live in the same ecosystem and establish relationships between each other" (Scolari, 2012, p. 209). Both intermedia coevolution and human-media coevolution are important to dissect the respective role of each mediated communication. Focus groups and in-depth interviews in our research indicate that most participants are shying away from newspapers in general nowadays in suburban and rural areas although certain news and information from newspapers is still desired. In this regard, instead of idealizing the "good old days" of local newspapers (Abernathy, 2018), it may be more proactive to interrogate the adapted role of community newspapers in the digital environment and strive for their new potential. Toward that end, a nuanced and accurate assessment of the changing functions of newspapers within the overall environs of information production and consumption in relative connection to other mediated outlets is the essential first step in contemplating innovative and integrative strategies.

One specific model is the hybrid hyperlocal media in Sweden as discussed by Nygren et al. (2018) that adapts to the evolving local media ecology and develops intermedia niche partnerships with legacy media in building digital platforms and amplifying voices to local communities. Similar initiatives in Spain, France, and Portugal are noted by Negreira-Rey et al. (2022). In direct relevance to China, *Southern Weekend*, which is a weekly in Guangzhou, took the drastic measure in April 2018 to a subscription-based multitier digital service expanding to not just repurposing local and regional news but also packaging service-oriented comprehensive information to diverse user groups. On its fifth anniversary in April 2023, it has garnered over 320,000 fee-paying subscribers, and the digital platform alone has generated a revenue of RMB 44 million (approximately 6.5 million USD; Xu, 2023). This shows local news alone may not be sufficient in attracting a viable subscriber base, but integrating news with diverse user-sought information for deliveries to apps and other digital venues can be a promising hybrid model in sustaining hyperlocal news production. We concur with Nygren et al. (2018, p. 46) that this is a very much "under-researched area of local news ecologies" in media and journalism scholarship.

The Convergent Media initiative by the Chinese state seems to be an effective response to local news production in the digital era. Integrating news, serviceable information, and community announcements into one app has become a primary venue for local residents to stay informed. Other community-based news channels

are WeChat-based public accounts. These are all administered by local governments and serve the duality of information and propaganda needs. It must be understood within the particularity of the Chinese media system, which bans individuals and private capital from the news business. Mediated communication has always been a battlefield of ideological control and contestation between state and civil society interests in China (Meng, 2018), and the state-orchestrated Convergent Media represents a new frontline for the authorities at the local levels to propagate news and information they see fit. This type of community news production is not likely to be feasible for the vast majority of democratic systems in which the media stay outside of the parameters of government interests.

User-generated social media news provides countervailing perspectives and information not endorsed by the legacy media. For most users, the common approach in engaging with the news is incidental exposure through which users are exposed to news information as a byproduct of engaging in other communication behaviors (Thorson, 2020). People are getting used to receiving all sorts of information on their smartphones, and accidental encounters with news take place when people perform other activities. "Snacking on the news" (Molyneux, 2018) is also built into the habits of most users, with frequent low-attention news reading becoming the norm. User-centered information production by social media influencers tends to fan the flame of conspiracy theories and nationalist sentiments, and news is often poached for its entertainment and fun-making value.

5.1. Limitations

This research is not without its limitations. We studied a few suburban and rural communities without local newspapers, and the results may not be generalizable to urban residents and many other regional communities in China. Our focus on digital news is broad in nature, and we did not elaborate on the depth, quantity, and quality of news in the process. Also, examination of specific types of news may be a useful approach in shedding light on the news-making process.

Conflict of Interests

The authors declare no conflict of interests.

References

Abernathy, P. M. (2018). *The expanding news deserts and ghost newspapers: Will local news survive*. University of North Carolina Press.

Aldridge, M. (2007). *Understanding the local media*. Open University Press.

Astuti, I. D., & Irwansyah, I. (2022). Online alternative media and their effort to overcome news desert in Indonesia. *Jurnal Komunikasi*, *14*(2), 382–403. https://doi.org/10.24912/jk.v14i2.19044

Barnidge, M., & Xenos, M. A. (2021). Social media news deserts: Digital inequalities and incidental news exposure on social media platforms. *New Media & Society*. Advance online publication. https://doi.org/10.1177/14614448211059529

Bruns, A. (2018). *Gatewatching and news curation: Journalism, social media, and the public sphere*. Peter Lang.

Cao, A., & Feng, E. (2022, February 17). The mystery of the chained woman in China. *NPR*. https://www.npr.org/sections/goatsandsoda/2022/02/17/1080115082/the-mystery-of-the-chained-woman-in-china

Central Television Research. (2023). *2022 electronic media digitization development research report*. https://www.ctrchina.cn/rich/report/528

Charmaz, K. (2014). *Constructing grounded theory*. SAGE.

China Internet Network Information Center. (2022). *The 50th statistical report on China's internet development*. www.cnnic.cn/n4/2022/0914/c88-10226.html

Cui, B., & Chen, Y. (2022). 2021–2022 *nian chanye fazhan baogao* [2021–2022 Chinese media industry development report]. *Media*, *381*, 9–15.

da Silva, C. E. L., & Pimenta, A. (2020). Local news deserts in Brazil: Historical and contemporary perspectives. In A. Gulyas & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 44–53). Routledge.

Deng, M., & Yan, Y. (2022). Striking the balance between professionalism and commercialism: A cross-case study on news start-ups in China. *Journalism*, *23*(11), 2471–2488. https://doi.org/10.1177/146488492199307

Fang, K., & Repnikova, M. (2022). The state-preneurship model of digital journalism innovation: Cases from China. *The International Journal of Press/Politics*, *27*(2), 497–517. https://doi.org/10.1177/194016122199

Ferrier, M., Sinha, G., & Outrich, M. (2016). Media deserts: Monitoring the changing media ecosystem. In M. Lloyd & L. A. Friedland (Eds.), *The communication crisis in America, and how to fix it* (pp. 215–232). Palgrave Macmillan.

Franklin, B. (2006). Preface. In B. Franklin (Ed.), *Local journalism and local media: Making the local news* (pp. xvii–xxii). Routledge.

Gulyas, A. (2021). Local news deserts. In D. Harte & R. Matthews (Eds.), *Reappraising local and community news in the UK: Media, practice, and policy* (pp. 16–28). Routledge.

Gulyas, A., & Baines, D. (2020). Introduction: Demarcating the field of local media and journalism. In A. Gulyas & D. Baines (Eds.), *The Routledge companion to local media and journalism* (pp. 1–22). Routledge.

Helsper, E. (2021). *The digital disconnect: The social causes and consequences of digital inequalities*. SAGE.

Jakubowicz, A. (2007). The media and social cohesion. In J. Jupp, J. Nieuwenhuysen, & E. Dawson (Eds.), *Social cohesion in Australia* (pp. 158–169). Cambridge University Press.

Jia, L., & Han, X. (2020). Tracing Weibo (2009–2019): The commercial dissolution of public communication and changing politics. *Internet Histories*, *4*(3), 304–332. https://doi.org/10.1080/24701475.2020.1769894

Jian, G., & Liu, T. (2018). Journalist social media practice in China: A review and synthesis. *Journalism*, *19*(9/10), 1452–1470. https://doi.org/10.1177/146488491877

Keane, M., & Chen, Y. (2017). Digital China: From cultural presence to innovative nation. *Asiascape: Digital Asia*, *4*(1/2), 52–75. https://doi.org/10.1163/22142312-12340068

Krueger, R. A., & Casey, M. A. (2015). *Focus groups: A practical guide for applied research*. SAGE.

Kümpel, A. S. (2020). The Matthew effect in social media news use: Assessing inequalities in news exposure and news engagement on social network sites (SNS). *Journalism*, *21*(8), 1083–1098. https://doi.org/10.1177/1464884920915374

Lambert, S. D., & Loiselle, C. G. (2008). Combining individual interviews and focus groups to enhance data richness. *Journal of Advanced Nursing*, *62*(2), 228–237. https://doi.org/10.1111/j.1365-2648.2007.04559.x

Lazarsfeld, P. F., Berelson, B., & Gaudet, H. (1944). *The people's choice: How the voter makes up his mind in a presidential campaign*. Duell, Sloan and Pearce.

Luo, Y., & Harrison, T. M. (2019). How citizen journalists impact the agendas of traditional media and the government policymaking process in China. *Global Media and China*, *4*(1), 72–93. https://doi.org/10.1177/2059436419835

Marchi, R., & Clark, L. S. (2021). Social media and connective journalism: The formation of counterpublics and youth civic participation. *Journalism*, *22*(2), 285–302. https://doi.org/10.1177/146488491880781

Meng, B. (2018). *The politics of Chinese media: Consensus and contestation*. Springer.

Micheli, M., Lutz, C., & Büchi, M. (2018). Digital footprints: An emerging dimension of digital inequality. *Journal of Information, Communication and Ethics in Society*, *16*(3), 242–251. https://doi.org/10.1108/JICES-02-2018-0014

Michell, L. (1999). Combining focus groups and interviews: Telling how it is; telling how it feels. In R. S. Barbour & J. Kitzinger (Eds.), *Developing focus group research: Politics, theory and practice* (pp. 36–46). SAGE.

Molyneux, L. (2018). Mobile news consumption: A habit of snacking. *Digital Journalism*, *6*(5), 634–650. https://doi.org/10.1080/21670811.2017.1334567

Negreira-Rey, M. C., Amigo, L., & Jerónimo, P. (2022). Transformation of local journalism: Media landscapes and proximity to the public in Spain, France and Portugal. In J. Vázquez-Herrero, A. Silva-Rodríguez, M. Negreira-Rey, C. Toural-Bran, & X. López-García (Eds.), *Total journalism: Models, techniques and challenges* (pp. 153–167). Springer. https://doi.org/10.1007/978-3-030-88028-6_12

Nielsen, R. K. (2015). Introduction: The uncertain future of local journalism In R. K. Nielsen (Ed.). *Local journalism: The decline of newspapers and the rise of digital media* (pp. 1–25). I. B. Tauris & Co.

Nygren, G., Leckner, S., & Tenor, C. (2018). Hyperlocals and legacy media: Media ecologies in transition. *Nordicom Review*, *39*(1), 33–49. https://doi.org/10.1515/nor-2017-0419

Plantin, J. C., & de Seta, G. (2019). WeChat as infrastructure: The techno-nationalist shaping of Chinese digital platforms. *Chinese Journal of Communication*, *12*(3), 257–273. https://doi.org/10.1080/17544750.2019.1572633

Rolf, S., & Schindler, S. (2023). The US–China rivalry and the emergence of state platform capitalism. *Environment and Planning A: Economy and Space*. Advance online publication. https://doi.org/10.1177/0308518X221146545

Scolari, C. A. (2012). Media ecology: Exploring the metaphor to expand the theory. *Communication Theory*, *22*(2), 204–225. https://doi.org/10.1111/j.1468-2885.2012.01404.x

Shao, G., Lu, J., & Hao, Y. (2016). Assessing China's media reform. *Asian Perspective*, *40*(1), 27–50. https://doi.org/10.1353/apr.2016.0001

Stockmann, D. (2013). *Media commercialization and authoritarian rule in China*. Cambridge University Press.

Thorson, K. (2020). Attracting the news: Algorithms, platforms, and reframing incidental exposure. *Journalism*, *21*(8), 1067–1082. https://doi.org/10.1177/1464884920915352

Usher, N. (2023). The real problems with the problem of news deserts: Toward rooting place, precision, and positionality in scholarship on local news and democracy. *Political Communication*, *40*(2), 238–253. https://doi.org/10.1080/10584609.2023.2175399

Wang, H., & Sparks, C. (2019). Chinese newspaper groups in the digital era: The resurgence of the party press. *Journal of Communication*, *69*(1), 94–119. https://doi.org/doi:10.1093/joc/jqy061

Wang, Y. (2022). An overview of television news ratings in 2021. *CMS Media Research*, *2022*(4), 5–8. https://wwwpic.csm.com.cn/Files/2022/6/21/1622589637fb44a9b-2.pdf

Wikipedia. (n.d.). *Zunyi shi* [Zunyi city]. https://zh.wikipedia.org/wiki/遵义市

Wu, X., & Fitzgerald, R. (2021). "Hidden in plain sight": Expressing political criticism on Chinese social media. *Discourse Studies*, *23*(3), 365–385. https://doi.org/10.1177/1461445620916365

Xu, P. (2023). *Nanfang Zhoumo: Shengeng neirong wotu, lingpao fufei saidao* [Southern weekend: Harvesting rich content and leading the subscription-based race]. Center of Hubei Province. http://www.ccct.net.cn/html/bqzx/2023/0524/4350.html

Xu, V. W. (2022). WeChat and the sharing of news in networked China. *Digital Journalism*, *10*(9), 1441–1463. https://doi.org/10.1080/21670811.2022.2053335

Yu, Z., Hou, J., & Zhou, O. T. (2023). Short video activism with and on Douyin: An innovative reper-toire of contention for Chinese consumers. *Social Media + Society*, *9*(1). https://doi.org/10.1177/20563051231157576

Żadkowska, M., Dowgiałło, B., Gajewska, M., Herzberg-Kurasz, M., & Kostecka, M. (2022). The sociological confessional: A reflexive process in the transformation from face-to-face to online interview. *International Journal of Qualitative Methods*, *21*. https://doi.org/10.1177/16094069221084785

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