THE CRISIS OF LOCAL JOURNALISM: DEATH BY A THOUSAND PAPER CUTS

Arijit Paladhi

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Doctoral Committee

_____

Jason Peifer, Ph.D.

_____

Mike Gruszczynski, Ph.D.

_____

Gerry Lanosga, Ph.D.

_____

Filippo Menczer, Ph.D.

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THE CRISIS OF LOCAL JOURNALISM: DEATH BY A THOUSAND PAPER CUTS

The decline of local journalism in the United States represents a critical threat to democratic governance. Nearly one-fifth of Americans live in *news deserts* – which are communities with limited or no access to reliable local news. Predicated on this threat, we draw upon the political economy of media, public goods theory, and media pluralism frameworks to establish journalism as a public good characterized by positive externalities. However, the market mechanisms in place today have either consistently failed to adequately provide these externalities or been superseded by neoliberal capitalism's thirst for pillaging profit at any cost.

To that end, this dissertation's empirical analysis proceeds through two major studies. First, the theoretical analysis demonstrates how the confluence of technological disruption from digital platforms and these neoliberal deregulatory policies created conditions enabling aggressive financialized ownership – which we call *greedy money* models – to extract value from struggling newspapers while undermining their democratic functions. Using a stacked difference-in-differences design, we examine how private-equity-and-hedge-fund acquisitions of local newspapers affect electoral competitiveness in affected communities. Contrary to expectations of simple democratic decline, the findings reveal a surprising pattern: elections become substantially less competitive while simultaneously experiencing increases in voter turnout, declines in incumbent win rates, and increased candidate entry. These effects peak

one year after acquisition before partially dissipating, suggesting immediate disruption to local political equilibrium followed by a degree of gradual adjustment.

Second, we incorporate machine learning algorithms to identify counties that share similar socioeconomic profiles to news deserts. Addressing significant class imbalance in the data through various resampling techniques, the analysis finds that Random Forest combined with SMOTEENN is the strongest performer. The most significant predictor is the interaction between population density and GDP, highlighting how economic vulnerability intersects with demographic factors. Crucially, we incorporated neighboring counties' socioeconomic characteristics, which can help tease out how the formation of news deserts operates as a regional contagion rather than isolated local failures.

These findings challenge conventional narratives about media ownership and democratic health. Rather than straightforward erosion, private equity acquisition triggers complex political reorganization in local communities. The temporal dynamics and spatial dependencies suggest specific intervention windows and the need for regional rather than purely local policy responses. Ultimately, this work demonstrates that the crisis of local journalism operates through patterns that, once understood, offer opportunities for intervention.

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Chapter 1

Introduction

The assertion that journalism plays an indispensable role in preserving the vitality of a democratic society is a foundational premise in media scholarship. Yet, modern journalism, despite its commonly assumed critical importance, finds itself in a precarious state and caught in an unrelenting tension between its public service ideals and the harsh realities of economic survival. This significant paradox characterizes the contemporary journalistic landscape: a widespread societal acknowledgment of journalism's importance that somehow coexists with a systemic failure to provide the practical support and economic structures necessary for its sustenance.

The disconnect between the ascribed value of journalism as a public good and its actual operational vulnerability forms a central tension explored throughout this work. Arguably, it is journalism's general democratic contribution and long-term, self–sustained, advertising-dependent economic model that may have, historically, fostered a reactive rather than proactive approach to safeguarding it against market failures and structural challenges. This paradoxical complacency arguably emerged from two interconnected sources. First, journalism's perceived indispensability to democratic functioning created a dangerous assumption of permanence. The myth of journalism's inevitability was rooted in the belief that something so essential to society could never truly disappear (Pickard, 2020). Second, the advertising-subsidy model's remarkable success throughout the twentieth century masked its fundamental fragility and fed the illusion of market sustainability that discouraged serious

consideration of public media models common in other democracies (McChesney and Nichols, 2011; Anderson et al., 2015). With decades of profitable operations, it obscured the need for alternative support structures. Thus, when the wave of digital disruption arrived, journalism found itself without the safety nets, public funding mechanisms, or alternative revenue streams that might have been developed had the industry and policymakers recognized its vulnerability earlier. The result? A pattern of crisis-driven responses ranging from emergency philanthropic interventions, ownership transfers or sales, and reactive policy discussions rather than systematic reforms that may have precluded or mitigated the slow collapse of local news ecosystems (Konieczna, 2018; Napoli, 2019; Sullivan, 2020).

Consequently, the erosion of this vital institution has occurred insidiously, with the full severity of its impact on democratic health becoming apparent only as the crisis has reached an acute stage. As newspapers have shuttered at alarming rates and entire communities have found themselves without access to critical local information, the foundational premise of an informed citizenry capable of democratic self-governance is now under threat.

Between 2005 and 2022, the United States lost more than 2,500 newspapers, leaving nearly one-fifth of the country's population residing in what researchers term "news deserts" – communities with limited or no access to a consistently reliable source of local information (Abernathy, 2020, 2022). This local journalism crisis extends beyond mere statistics; it represents a fundamental rupture in the civic infrastructure that has historically sustained democratic participation, governmental accountability, and community cohesion. The economic foundations of local journalism, whilst built upon the fortuitous marriage of advertising revenue and news production that sustained newspapers for over a century, have

completely crumbled in the digital age (McChesney, 2013; Pickard, 2019). Newspaper revenues plummeted from over $50 billion in 2005 to less than $20 billion within two decades, while newsroom employment declined by almost 60 percent between 2007 and 2015 (Abernathy, 2022). This economic collapse has been accelerated by the rise of technology companies' digital platforms that have monopolized the advertising revenues once essential to newspaper viability, creating what scholars characterize as a market failure in the provision of public interest journalism (Baker, 2001; Hamilton, 2004; Pickard, 2015).

Yet this unfolding crisis of local journalism cannot be understood solely through economic metrics for at its core this represents a predicament concerning democratic governance itself. The theoretical foundations connecting journalism to democracy – from the concept of the Fourth Estate to the idea of a Habermas-ian public sphere – positions news media as a fundamentally essential institution for democratic accountability, civic engagement, and informed political participation (Habermas, 1989; Hampton, 2009; Schudson, 2008).

Habermas's public sphere concept offers important theoretical scaffolding here in that journalism serves as the primary institutional mechanism enabling rational-critical debate among citizens by transforming private individuals into a collective public body capable of scrutinizing state power through communicative action.

In economic terms, this public sphere framework enables journalism as a public good – it exhibits non-rivalrous consumption and generates positive externalities that extend far beyond individual consumers (Baker, 2002; Hamilton, 2016). The democratic benefits of informed citizenship—enhanced accountability, reduced corruption, increased civic

participation—create what Schudson (2008, p. 11) calls journalism's "democratic multiplier effect," accruing to all society members regardless of their personal news consumption. This theoretical understanding reveals the fundamental market failure: journalism's social value vastly exceeds what individual consumers can pay, resulting in systematic under-production of this essential democratic resource (Christians et al., 2009; McChesney & Nichols, 2010).

When local newspapers close, research demonstrates that voter turnout declines, fewer candidates run for office, incumbents become more likely to win re-election, and municipal borrowing costs increase – all tangible evidence of journalism's role to what economists term a "public good" with significant positive externalities for democratic society (Schulhofer-Wohl & Garrido, 2009; Gao et al., 2020; Rubado & Jennings, 2020).

Another way to measure journalism's effect on society is to ascertain its impact. When it comes to media studies, it is crucial to differentiate between the conceptions of media effects and media impact. While they both have a degree of overlap, media effects is often studied at an individual level by measuring how media messaging can potentially influence users' attitudes, beliefs, and behaviors (Leiserowitz, 2004; Valkenburg et al., 2016). On the other hand, the notion of media impact refers to a more macro perspective, moving beyond effects on individuals to examine broader systemic changes at organizational and institutional levels (Inagaki, 2007; Napoli, 2009). Importantly, given that there are significant methodological challenges in conducting long-term research, media effects often specifically investigate short-term effects. In contrast, media impact looks at more enduring change with a wider lens by engaging with multiple perspectives: the audience, the content, as well as public interest.

This dissertation examines the crisis of local journalism through interconnected theoretical and empirical investigation lenses that illuminate different dimensions of this challenge. First, informed by different theoretical foundations and journalism's positive externalities, I argue the case for journalism's 'public good' argument in the second chapter. The theoretical framework is drawn from multiple scholarly traditions. Political economy of media provides tools for understanding how ownership structures, market dynamics, and regulatory frameworks shape journalism's capacity to serve democratic ends (McChesney, 2008; Freedman, 2014). Media pluralism theory emphasizes the importance of diverse ownership and content in preventing information monopolies and ensuring multiple perspectives reach the public sphere (Napoli, 2001; Baker, 2006). Last but not least, public goods theory illuminates why market mechanisms systematically underproduce journalism despite its social value, as the non-excludable and non-rivalrous nature of news makes it difficult to capture its full economic worth through market transactions alone (Musgrave, 1969; Samuelson, 1969).

Second, we turn to investigate how *greedy money* (i.e. private equity and hedge fund firms) representing the most aggressive and uncaring form of financialized media ownership – affects electoral competitiveness in communities where they hoover up local newspapers. Using a stacked difference-in-differences design across counties that experienced private equity acquisitions between 2010-2022, we measure changes in vote margins – the difference between winning and runner-up candidates – as a proxy for electoral competitiveness. The urgency of this issue stems not only from the accelerating pace of newspaper closures but also from the seemingly blind acceptance of opaque newsroom ownership models that now hold vice-like sway over the information sources of communities across the country. Private equity

firms, hedge funds, and investment companies now control most American newspapers, implementing aggressive cost-cutting measures that hollow out newsrooms entirely even while maintaining the facade of continued publication (Abernathy & Franklin, 2022; Ewens et al., 2022). Given the term ‘ghost newspapers,’ these publications exist in name but lack the reporting capacity to fulfill their democratic functions, and represent a subtler but potentially more pernicious threat than outright closures as they obscure the erosion of local news infrastructure while communities remain unaware of what they have lost.

Third, is the development of predictive models to identify which communities are most at risk of becoming news deserts given their underlying conditions. Leveraging machine learning algorithms along with socioeconomic, demographic, and spatial data, this idea recognizes that local journalism is fundamentally place-based, with news ecosystems shaped by regional economic conditions, demographic patterns, and spatial dependencies that transcend county boundaries (Napoli et al., 2018; Usher, 2019). The underlying argument is that a county's risk of becoming a news desert is influenced not only by its own characteristics but also by the conditions in neighboring counties, reflecting the interconnected nature of regional media markets (Case et al., 1993; Anselin, 2019).

We conclude by discussing the empirical findings and considering potential policy interventions that might preserve local journalism's core democratic functions. This multi-faceted approach enables a comprehensive examination of local journalism's crisis that moves beyond simple economic explanations to encompass the complex interplay of ownership structures, market failures, and geographic factors. By integrating different perspectives, this dissertation aims to embrace both theoretical insights and pragmatic guidance for addressing

one of the most significant challenges facing American democracy: preserving local journalism's essential role in maintaining an informed citizenry capable of democratic self-governance.

Chapter 2

Theoretical Motivation

2.1

Theories & Roles of the Press

The conceptualization of journalism as an independent force, crucial for scrutinizing power and enlightening the populace, finds an early articulation in the idea of the "Fourth Estate". This notion, emerging in contrast to the traditional estates of Clergy, Aristocracy, and Commoners, posits that society requires an "objective, rigorous, and impartial watchdog" capable of discerning truth from fabrication, while also serving as an "independent conduit of information" between the state and its citizens, and vice versa (Hampton, 2009). While the democratic foundations of nations may vary, certain prerequisites, such as a free press endowed with editorial independence and transparency, are widely considered essential.

The relationship between media and democracy, though complex in its practical manifestations, is clear in its rhetorical essence: neither institution single-handedly creates the other, yet if representative democracy embodies the will of the people, then journalism provides indispensable services that sustain and preserve that political framework (Schudson, 2008). The presence of a fully functional news media system does not automatically guarantee an informed citizenry or a healthy democracy; however, substantial evidence suggests that democracy cannot flourish in the absence of a vibrant media ecosystem.

This idea of journalism as a distinct societal function, while fairly ancient in its rudimentary forms of information dissemination, is relatively modern in its institutionalized expression, having largely co-evolved with the technologies of mass communication. The invention of the printing press, for instance, marked a pivotal transformation in the distribution and consumption of information, and authorities in sixteenth-century Europe quickly recognized the destabilizing potential of this newfound capacity to spread ideas. Early responses included the implementation of libel laws, restrictive licensing, and copyright regulations, explicitly aimed at controlling content and prohibiting "heresy, sedition, and treason" (Raymond, 2005). England, for instance, banned foreign news in 1632, deeming it unsuitable for public discourse.

In the United States, the growth of newspapers and a vibrant readership was propelled by a confluence of political, social, and technological shifts. At a political level, copyright policies, trade protections, and incentivizing news readership through postal services helped grow the nascent publishing industry (Starr, 2004). Socially, an expanding literate population fueled demand, transforming the early penny press from a somewhat formulaic but lively product into a dynamic and more widely circulated medium, thereby attracting more advertising. Last, technological changes produced a 30 percent drop in paper prices before wood pulping technology introduced after the Civil War dramatically reduced costs and facilitated mass production.

Despite the varied trajectories of press development globally, the relationship between journalism and power has remained a central theme. Even in early U.S. history, before commercial advertising fortuitously enabled a degree of political independence for

newspapers in the early 20th century, the press was often enmeshed in partisan politics. As John Nerone notes in his chapter *Newspapers and the Public Sphere*, political parties deployed newspaper networks to mobilize voters, leading to a public sphere that was, at times, "held captive not to the public but a press willing to be pliant to the party interests" (Casper et al., 2007). This historical precedent serves as a cautionary tale when considering contemporary pressures on journalistic independence. Domestically or globally, any society with formal political institutions, democratic or non-democratic, has news media in some form today. Nation states with various shades of totalitarianism have them in a multitude of repressed forms that are easier to shut down through the means at their disposal (Curran, 2019). For instance, Raif Badawi, a dissident blogger in Saudi Arabia was sentenced to a thousand lashes in 2014; Siddique Kappan, an Indian journalist who was jailed on false money laundering charges while travelling to report on a rape case, was released after over two years in 2023; in 2016–2017, over 170 media organizations in Turkey were forced to shut down. Even in authoritarian states with censorship regimes, journalists, with or without the backing of news organizations, find ways of publishing material relevant to the masses.

These varying relationships between the press and power structures are reflected in several normative theories that attempt to define what the press *should* ideally do within different political systems. These roles, which collectively underpin journalism's contribution to democratic governance, serve as benchmarks against which the health and performance of a media system can be assessed. Key among these functions are:

- Informational Role: At its core, democracy relies on the premise of informed choice, which necessitates access to fair, accurate, and unprejudiced information. Journalism

fulfills this critical need by providing citizens with the knowledge required to be informed participants in their own governance (Chambers & Costain, 2001; Schudson, 2020; Kovach & Rosenstiel, 2021). Democratic theory posits that informed citizens are better equipped to participate meaningfully in politics, develop coherent attitudes on issues of concern, and effectively evaluate political representatives during elections (Carpini & Keeter, 1996).

- Investigative/Monitorial/Watchdog Role: An extension of the informational function, this role involves critical scrutiny over powerful individuals and institutions, whether in government, corporations, or other spheres of influence. Often referred to as the "watchdog" function, it aims to bring to light individual wrongdoing or systemic malfeasance, thereby holding power accountable. The interpretation of this role by journalists themselves has evolved with changing societal contexts (Johnstone, Slwaski, and Bowman 1976; Weaver & Wilhoit, 1991). In fulfilling this function, journalists are seen as upholding the country's political norms and representing the citizenry, contributing to an "altruistic democracy" that ideally complements "responsible capitalism," where fair competition fosters broad economic prosperity (Allan, 2010).

- Representative Role: Journalists also often act as mediators between the citizenry and the political class, serving as representatives of public concerns and sentiments. They report on various forms of civic and political engagement, such as polling data, voting

patterns, demonstrations, and protests, thereby giving voice to public opinion (McNair, 2008). Conversely, they also act as conduits from those in power, interviewing and critiquing political actors and conveying information about policy decisions that directly affect the public, enabling citizens to form their own opinions or understand the rationale behind governmental actions (Gilboa, 2005; Michailidou & Trenz, 2021).

- Public Forum Role: This ideal aligns with Jürgen Habermas' (1989) conception of the public sphere – a common space where citizens can discuss and deliberate on societal issues as equals. Historically, media outlets have provided avenues for such public discourse through letters to the editor, phone-in programs, studio debates, and opinion columns (McNair et al., 2003). As noted earlier, John Nerone highlighted the historical complexity of this role, particularly when newspapers were closely tied to party interests before the rise of commercial advertising (Casper et al., 2007, as cited in [1]).

- Analytical Role: News media often provide frameworks for understanding the complex world, offering coherent analysis that helps the public make sense of events and their implications (Willnat et al., 2013). This role involves a blend of analytical and deliberative dimensions, characterized by direct intervention in political discourse, engagement with audiences in ongoing conversations, and the provision of opportunities for political participation (Johnstone et al., 1972). The analyst function is primarily focused on offering interpretations of news events, often with an explicit

element of subjectivity and opinion, tracing causes, predicting consequences, and playing a critical part in shaping political discourse (Hanitzsch & Vos, 2018).

Understanding these theoretical lenses and journalistic roles are crucial for understanding the diverse conceptualizations of the press' role and the inherent malleability of these roles in practice. These roles are not always discrete and can exist in tension with one another, particularly when resource are scarce or under differing editorial priorities. For example, an intensive focus on the resource-demanding investigative role might inadvertently limit the breadth of routine informational coverage. Similarly, the analytical role, with its acknowledged "strong undercurrent of subjectivity and opinion" (Hanitzsch & Vos, 2018), may sometimes appear to conflict with the ideal of purely objective information provision central to the informational role. Furthermore, if the public forum role becomes dominated by polarized or uncivil discourse, as has happened with social media in recent times, it could undermine rather than foster reasoned deliberation and debate. News organizations must constantly navigate these inherent tensions. The decline in journalistic resources, which will be an oft-repeated theme (or a *fault line* depending on your view) discussed in this dissertation, exacerbates these subtextual conflicts, forcing difficult choices about which roles to prioritize and potentially leading to an overall diminishment of journalism's democratic utility.

The dominant ideology and economic system of a nation also significantly influence which press theory is implicitly or explicitly adopted, how "press freedom" is defined, and what functions journalism is permitted or expected to fulfill. This implies that achieving a

truly independent press, capable of fulfilling its public good mission, requires not only legal guarantees but also a supportive political and economic environment that actively insulates it from undue influence, whether from the state or concentrated private power.

The historical examples of partisan capture and contemporary authoritarian repression illustrate that the practice of journalism always exists on a spectrum of freedom, its position determined by these larger societal forces. Importantly, delving into these themes is directly relevant to Chapter 2's examination of how financialized and greed-fueled economic structures can impinge on journalistic roles. Chapter 3's focus on news deserts within these power structures examines the intrinsic failure of certain systems to ensure basic informational access and a fundamental failure to provide any of these essential journalistic roles at the local level.

2.2

The Political Economy of Modern Media: Ownership, Markets, and Regulation

Understanding the contemporary crisis in journalism necessitates a political economic approach, which analyzes how media and communication systems, along with their content, are fundamentally shaped by factors such as ownership structures, market dynamics, commercial support, technological advancements, labor practices, and government policies (McChesney 2008). This critical lens evaluates media systems by assessing their impact on political and social power within a society. It interrogates whether existing media structures bolster or undermine a country's democratic foundations and explores alternative governance models that might better foster democratic communication (Freedman 2014).

In any nation, regardless of its power structure, the link between incumbent power and its proclivity to dictate and shape narratives places media roles at the center of a power struggle. The idea of a “public sphere”, which is a central concept in democratic theory relevant to media famously posited by Jürgen Habermas in 1989, stems from the notion that a crucial factor across democratic structures is the existence of a common forum, or a public sphere, where citizens can discuss and deliberate societal issues as equals (Habermas, 1989).

However, this conception also emerged from a specific historical transformation. During the eighteenth century, the rise of the bourgeois public sphere fundamentally altered the print newspaper's function, transforming it from an instrument serving narrow commercial interests and religious controversies into a vehicle for continual political argumentation and deliberation. This transformation coincided with the age of bourgeois revolutions – the

Glorious Revolution in England, the American Revolution, and the French Revolution – each producing vigorous news cultures that positioned newspapers as central resources for democratic discourse. The shift in political legitimacy from a divine right to popular sovereignty made public opinion central to governance, necessitating systems of national communication infrastructure and yet, states simultaneously maintained press controls through licensing and prohibition (Barnhurst & Nerone, 2009). As newspaper discourse evolved, it claimed adherence to norms of rational discourse that Habermas ascribed to the bourgeois public sphere: openness, impersonality, and rationality in deliberation. Yet the historical reality is much more complex than this theoretical ideal. While Habermas's framework posits these characteristics as defining features of eighteenth-century public discourse, historians have disputed whether such norms reflected the actual sociology of news production and consumption (Mah, 2000; Raymond, 2003).

This theoretical framework of Habermas' public sphere arguably finds its legal echoes in the American conception of the "marketplace of ideas," a metaphor that has shaped how America has conceptualized the media ecosystem's role in its democracy. When Justice Holmes delivered his dissent in *Abrams v. United States* in 1919, he introduced the notion of "competition of the market" into First Amendment jurisprudence, building on the assumption that without governmental interference, rational individuals would identify truth and reject falsehood through the free flow of ideas in a marketplace (Healy, 2014). This theory became foundational to Supreme Court doctrine, as exemplified in *Hustler Magazine Inc. v. Falwell*, where the Court affirmed the "fundamental importance of the free flow of ideas and opinions on matters of public interest and concern" (Parker, 2010). Similarly, in the landmark case of *Red Lion Broadcasting Co. v. Federal Communications Commission,* Supreme Court Justice

White declared that the purpose of the First Amendment was ".. to preserve an uninhibited marketplace of ideas in which truth will ultimately prevail, rather than to countenance monopolization of that market".

Yet the marketplace metaphor, like Habermas's public sphere, rests on idealized assumptions about rational discourse and equal access that have proven increasingly tenuous in the digital age. Justice Holmes himself recognized truth as subjective and dependent upon available information, conceptualizing it as something that evolves based on experience rather than existing as an absolute certainty (Schroeder, 2018). Legal scholars have also challenged the public sphere and marketplace theory assumptions over the years, noting that not everyone has equal access to the public sphere and that dominant groups' interests disproportionately shape the reality presented through media channels (Barron 1968; Baker, 1989; Fraser, 1991).

Today's digital public sphere is a handful of private corporations that wield unprecedented power to shape global discourse according to algorithms optimized for engagement. Importantly, the contemporary media landscape has also inextricably linked and altered both the original conceptions of the public sphere and marketplace theory. As Balkin (2018) argued, free speech today operates within a triangular structure comprising nation-states, privately owned internet-infrastructure companies (including social media platforms, search engines, and broadband providers), and various speakers ranging from legacy media to civil society organizations. This configuration introduces the phenomenon of "collateral censorship," where states pressure private platforms across the globe to regulate speech without repercussion. – a dynamic evident, for example, in cases from India's 2019 elections

to the government's COVID-19 response, where Twitter complied with orders to delete posts critical of government handling (Mogul, 2021).

It is imperative to note that the unchecked prioritization of engagement by social media platforms has created what might be termed a “prejudiced marketplace”, where truth in the digital public sphere has become a casualty of profit maximization. Research demonstrates that false news spreads faster than truth on social media networks, with false news cascades reaching between 1,000 and 100,000 people while truth rarely diffuses to more than 1,000 (Vosoughi et al., 2018). Compounded by illusory truth effects, statements repeated more often in today’s digital public sphere are perceived as more truthful regardless of their veracity and compounded by most social media platform’s deliberate exploitation of moral outrage to drive engagement (Fazio et al., 2015; Crockett, 2017).

The implications for democratic discourse in such a public sphere are profound. Platforms like Facebook (or Meta, as it is currently known) have facilitated ethnic cleansing in Myanmar, where military posts turned the network into a tool for violence against the Rohingya, and enabled Russian interference in the 2016 U.S. elections (McCarthy, 2017; Mozur, 2018). An investigative report from *The Guardian* also revealed how platform manipulation disproportionately affects poor, small and non-western countries, with cases in Afghanistan, Iraq, Mongolia, and Latin America largely ignored while similar issues in the U.S., Taiwan, and Poland received swift attention (Wong, 2021).

And while Habermas's original formulation has faced critiques, notably from Fraser (1990) for conflating distinct societal arenas and idealizing historical realities, the core logic remains influential despite the paradox: democratic societies benefit from media structures

that can act as proxies for public deliberation, ideally insulated from undue influence by either state or corporate power, a dynamic that continues to characterize contemporary struggles over media ownership, market concentration, and journalism's capacity to fulfill its public sphere function. And even though news consumption has moved online today and journalists are accessible via social media platforms, media outlets have historically given citizens access to the public sphere through different means like readers' letters to newspapers, phone-ins, participation in studio debates about public affairs, writing op-eds etc. (McNair et al., 2003).

Within this realm, political economy of communication argues that what really shapes media policies and institutional power structures are often the byproducts of systematic interventions at "*critical junctures*" (Starr, 2004, McChesney, 2008). Such *junctures* are not common for large institutions, are often decades in the making, and are usually caused by social, political and/or technological turmoil. "Critical junctures are rare events in the development of an institution. The normal state of an institution is either one of stability or one of constrained, adaptive change," offer Capoccia & Kelemen (2007). While the shaping of any nation's media policies are essentially driven by political and social impetus to organize public life, McChesney suggests that significant course changes in media and communication typically arise when at least two, if not all, of the following circumstances are present (McChesney, 2013): a new communication technology disrupts status quo (example: printing press, internet); media content, particularly journalism, becomes widely discredited or perceived as illegitimate; significant political crisis or severe social inequality leads to the existing order being questioned, dominant institutions challenged, and growing social movements advocating for reform. Decisions made during these periods can set media development on a particular path for an extended time, making subsequent changes difficult.

In the United States, media policy has been notably shaped by two overarching, sometimes conflicting, political economic perspectives: *liberal pluralism* and *neo-liberalism* (Freedman, 2014). Liberal pluralists argue that U.S. politics is characterized by a competition among various interest groups for power and influence, resulting in a system that, despite structural inequalities, lacks a single dominant voice. This perspective views democracy as a "political marketplace" where a group's success depends on its resources and its "decibel rating", or its ability to be heard, which is potentially influenced by factors like social status and insider knowledge rather than solely class or financial power (Ham and Hill, 1993). Applied to media policymaking, *liberal pluralism* or *pluralism* suggests that the risk of undue influence from private interests is mitigated by openness and multiple entry points in the media and regulatory process, leading to more balanced policy outcomes through decentralized decision-making. Key features of pluralist media policymaking include accountability, impartiality, and autonomy, with an emphasis on the independence of regulatory bodies like the Federal Communications Commission (FCC). A core tenet of the pluralist approach is that media monopolization is a threat, necessitating state intervention at times to promote competition and diversity of voices (Baker, 2002).

On the other hand, neo-liberalism has been the defining idea of American economic exceptionalism for a while. Neo-liberalism, in contrast to *pluralism*, champions personal responsibility, individual gain, and private property, advocating for laissez-faire economics characterized by deregulation, liberalization, free trade, and tax cuts. Neo-liberal politics have profoundly influenced communications policy, with market pressures shaping much of the contemporary media environment, from the state's regulatory role to the type and quality of content produced (Chakravartty & Sarikakis, 2006). Critics argue that this market-driven

approach treats audiences primarily as consumers and knowledge as a commodity, prioritizing profit-making over non-market values (McChesney, 2000; Hamelink, 2002). A hallmark of neo-liberal media policy is deregulation, aimed at reducing or eliminating state oversight of media industries. This was particularly evident in the 1980s, when FCC chairmen Charles Ferris and Mark Fowler spearheaded initiatives that reduced regulation, opened markets for new ventures, and eliminated rules on ownership and content minimums (e.g., for news and children's programming). Key pluralist policies like the Fairness Doctrine were abolished, and the 1996 Telecommunications Act further entrenched deregulation by allowing cross-market entry for cable and telephone companies, relaxing ownership rules, and deregulating cable rates (Horwitz 1989; Aufderheide 1999). Neo-liberalism has also favored self-regulation and co-regulation, where the private sector takes a leading role, arguing for greater efficiency and flexibility than government intervention (Verhulst & Price, 2000). However, critics contend that such "self-regulation" in market-friendly environments often allows dominant players to shape rules in their favor, shield themselves from accountability, and harm competitors (Open Society Institute, 2005).

The tension between pluralist and neo-liberal perspectives is starkly evident in debates surrounding media ownership concentration, which refers to when a large fraction of mass media is in control of a limited few entities (Curran & Seaton, 2010). Political economists often use the Herfindahl-Hirschman Index (HHI) to measure market concentration levels, and the potential impact of market concentration on competition, consumer choice, and market dynamics. An HHI below 1,000 suggests a competitive market, a score between 1,000 and 1,800 indicates moderate concentration while a score above 1,800 represents a highly concentrated market. In a research study, Noam found that in 1984, the top five firms within

the United States communications industry had accumulated 13 percent of the revenue with an HHI score of 7,219 but within the next two decades, that number had grown to 29 percent and an HHI score of 7,676 (Noam, 2008).

Similarly, Ben Bagdikian, in his pioneering study back in 1986, showed how the concentration of media ownership in the United States helps media owners advance their own vested interests through their news outlets (Bagdikian, 1986). More recently, McChesney has hammered home the same point that when the media speaks the ideology of the owner and media ownership concentration is high in a nation, his or her views become indistinguishable from the media's content (McChesney, 2004). Such studies have already demonstrated how concentrated media ownership can allow owners to advance their vested interests, potentially giving their perspectives an undue advantage and limiting the diversity of voices in the public sphere. The case of former Italian Prime Minister Silvio Berlusconi, whose media empire allegedly propelled his political career, is often cited as an extreme example (Baker, 2006). Eli Noam's research further documented the increasing concentration within the U.S. communications industry (Noam, 2006, 2008). While *pluralists* view such concentration as a threat to democratic discourse, neo-liberal proponents argue that market competition alone will incentivize owners to cater to diverse consumer preferences and that diverse ownership does not automatically guarantee diverse content (Doyle, 2002). However, this very conveniently overlooks the power of owners to influence content, directly or indirectly (Cole and Harcup, 2009).

Thus, we can argue that this contemporary local media crisis should be understood as the outcome of a *critical juncture* where the disruptive force of the internet intersected with a

dominant neo-liberal policy environment that favored deregulation and market fundamentalism. Initially the advent of news broadcast and then the internet fundamentally disrupted traditional newspaper business models, particularly print advertising revenue, while simultaneously the prevailing neo-liberal ideology led to a weakening of public interest safeguards and facilitated even greater media concentration. This confluence has created a perfect storm, accelerating the decline of traditional journalism and creating conditions conducive to the rise of private equity and hedge funds ownership models. The failure to proactively shape the digital media landscape with robust public interest principles during this *critical juncture*, largely due to the ascendancy and unchecked acceptance of the neo-liberal ethos, has had and continues to have long-lasting consequences, contributing significantly to the current challenges.

2.3

A Public Good for the Public Good

The premise that local journalism, especially when fulfilling its public service obligations, acts as a public good carries significant implications for its provision within a market economy. The simplest way to distinguish *public goods* from *private goods* is that the former does not create entrance barriers and it is developed primarily with the idea of enabling access and is made open to public usage. Foundational scholarship in economics defines public goods by two primary characteristics: they are *non-excludable*, meaning it is difficult or impossible to prevent individuals from benefiting from the good once it is provided, and *non-rivalrous*, meaning one person's consumption of the good does not diminish its availability or utility to others (Musgrave, 1969; Samuelson, 1969).

However, items that exemplify both traits are particularly rare and especially so if they do not occur naturally. They most often either display both characteristics to a specific extent or display one characteristic more than the other. Based on the extent of each trait, they can be categorized into several types: pure public goods, impure public goods, club goods, and common-pool goods. *Pure public goods* embody the best of both traits in that it is very difficult, if not impossible, to prevent anyone from using them, and one person's use does not diminish their availability to others. For example: clean air, sunlight etc. are examples of pure public goods (Samuelson, 1954). *Impure public goods* possess some features of pure public goods but only exhibit certain portions of both traits, or even some part of non-excludability and non-rivalry. For instance, a public park might be considered an impure public good

because it can become congested or overcrowded, specific trails at national parks are open to public and others are shut down to stop overcrowding (Cornes & Sandler, 1996).

*Club good*s, another subset of public goods, are often referred to as artificially scarce goods because they only show one of the two traits – they are excludable but non-rivalrous (or at least up to a point). What this implies is that access can be limited, but these goods are still available to multiple users without running the risk of being depleted. An example would be cable television, or private parks, where individuals can access what they want without affecting others' ability to access it (Buchanan, 1965). Often, the criteria for access to using this type of good is the willingness to pay a toll, and subsidizing the toll by a third-party, often the government, is a means for lowering the entrance barrier to access. So national parks or highways can have a toll, but the toll is also kept low enough to keep it affordable. Last are *common-pool goods* which are non-excludable but rivalrous, indicating that they are available to everyone, but the resource may be depleted if overused. Examples of common-pool resources include fisheries and forests, where excessive use can lead to depletion and degradation (Ostrom, 1990).

Another facet of economic goods is what is referred to as *externalities*, which arise as the byproduct of economic actions. This is the range of goods whose characteristics stem from either the *positive externalities* that these goods accrue for society or that their exclusion is particularly costly for society. For instance, it is cheaper and easier to provide access to public education and public healthcare system than ensuring access to a viable alternative private good. It is in this vein that the theory of public goods can be used to argue for treating journalism, or the information disseminated through a free press, as a public good. Public

service journalism, for example, engenders numerous social democratic benefits by keeping the citizenry informed, allowing them to make informed decisions – which are the positive externalities of a free press in a democratic society (McChesney and Nichols, 2010; Hamilton, 2014; Pickard, 2015).

However, a fundamental tension arises when attempting to reconcile the *public-good* nature of information with the economic imperatives of news production within market-driven systems. While the news or information published itself may be inherently *non-excludable* and *non-rivalrous*, the journalistic products that convey this information (newspapers, broadcasts, digital articles) are often artificially transformed into *club goods* through mechanisms such as paywalls, subscriptions, or copyright enforcement (Krugman & Wells, 2013). This transformation is typically a response to the free–rider problem, where individuals can benefit from a good without contributing to its cost, thereby undermining the financial viability of its production (Baker, 2001).

In their scholarly as well as mainstream writings, political media economists have repeatedly called out this abandonment of high-quality investigative journalism by commercial news organizations as a *market failure* – referring to the under-production of public goods when left to market mechanics. In the journalistic context, it basically implies a lack of financial investment in journalism that produces positive externalities, like in-depth reporting, investigative journalism etc. (Pickard, 2015; Allern & Pollack, 2019). There is also strong support in the mainstream literature regarding the suggestion that specific population groups, like poorer households, communities of color, linguistic and ethnic minorities, will be systematically underserved, even by efficient markets, due to the incentive of primarily

chasing advertising revenues in the media sector along with the rising concentration of media ownership (Baker, 2001; Cooper, 2010).

Media organizations also have to juggle two marketplaces at the same time, simultaneously having to sell to both audiences and advertisers, with success in the first market (audience as the consumer) being a determinant of their success in the second (audience as the product) (Napoli, 2019). This means news organizations often invariably create an artificial scarcity of important news or information relevant to the public in order to generate revenue which then directly conflicts with the non-excludable ideal of a public good, potentially limiting access to vital information for those unwilling or unable to pay (Pickard, 2020). This can lead to information inequality, excluding segments of the population from informed participation in democratic life and thereby weakening the overall health of the democratic system. This inherent conflict between the social logic of public goods (universal access, widespread externalities) and the economic logic of markets (profit generation, exclusion for payment) is a root cause of many of the challenges confronting contemporary journalism, including the underproduction of public service-oriented journalism. This public good paradigm is crucial for appreciating the potential detriments of purely profit-maximizing ownership models and for recognizing why the emergence of news deserts, such as those explored in the latter empirical chapters, which signifies the market failure inherent in the provision of this essential democratic resource.

2.4

Changes in News Consumption & Erosion of Public Service Journalism

The increasing commercialization of the press, although historically having provided a degree of editorial independence from partisan control, has been criticized for potentially driving down journalistic standards and, in the process, undermining democracy itself (Wahl-Jorgensen & Hanitzsch, 2009). In a purely commercial media environment, particularly one with strong market pressures, there can be a perverse incentive for news organizations to pander to rather than inform, prioritizing content that attracts the largest audience or satisfies advertisers over content that serves critical information needs (Mullainathan & Shleifer, 2005). Critics argue that increased market influence has encouraged sensationalism, a shift towards entertainment-oriented reporting, and a general "dumbing down" of news content (Postman, 1985; Entman,1989; Patterson, 2000).

This decline of "hard news", defined as journalism primarily intended to inform and encourage reflection and action on significant political, social, and economic issues, has drawn particular concern (Anderson & Ward, 2007). The trend towards "soft news" and de-contextualized reporting is also arguably seen as undermining democracy by reducing citizens' knowledge of public affairs (Patterson, 2000; Bennett, 2003). The modern media ecosystem offers an unparalleled level of access to information and journalistic content from around the globe but it is within this high-choice environment that has made it easier for individuals to avoid political news and current affairs altogether, potentially leading to a less uniformly informed citizenry (Prior, 2007; Bennett & Iyengar, 2008).

The nature of a country's media system also plays a role; for example, the highly commercialized U.S. media system has seen a more pronounced growth of soft news at the expense of hard news and public affairs coverage compared to systems with stronger public service traditions, such as in Finland (Hamilton, 2004; Overholser & Jamieson, 2005; Curran et al., 2010). Criticism has also been directed at the extent to which political coverage has become absorbed into a broader celebrity culture, emphasizing personalities and image over substantive issues (Corner & Pels, 2003).

And the litany of challenges facing newsrooms are not just offshoots of commercial and structural issues but are also intertwined with the political. While incumbent governments often quote the importance of a free press for democracy in their public rhetoric, it is only the interpretation of the law by courts that has played an important role in protecting media's editorial independence from overbearing states across the globe (Reich and Hanitzsch, 2013; Hamada, 2021). It is not just authoritarian regimes but also liberal democratic governments who employ a plethora of laws to police media content and sanction news outlets. Defamation, data protection, invoking national security, contempt of court, copyright are just a few tools employed to restrict journalists. Real press freedom, referred to as the "degree of freedom from restraint which is essential to enable proprietors, editors and journalists to advance the public interest" is quite rare (Frost, 2007).

In such an environment, the importance of journalistic agency, of using journalism to service the common good and protect public interests, and of editorial independence take on ever more important dimensions. Journalistic norms and ethics, which include a host of concepts like accuracy, objectivity, impartiality, integrity, the separation of factual news from

opinion, and editorial independence, are vital in shaping public discourse especially given the context of media concentration and rising corporate ownership of media outlets (Ward, 2004). And while journalistic agency and editorial independence can often serve as counterinfluences in public discourse but the degree of its impact is neither absolute nor guaranteed. It often depends on the interplay between the individual journalist, the nature of media organization that employs them, its ownership and revenue structure, as well as the overarching socio-political landscape. It is journalistic ethics along with a diversity of perspectives that contributes to the credibility of news organizations and help maintain public trust in the media, and consequently to an informed and healthy democracy (McQuail, 1992).

Editorial independence is often an unnoticed but key driver in the quality of public service journalism. Independent editorial boards and journalistic agency allow journalists to pursue stories without the undue influence of owners, advertisers, or other vested interests (Mancini, 2013). In many cases, journalists face significant constraints, such as financial pressures, market-driven imperatives, along with a crippling lack of job security and such factors can limit journalists' ability to uphold their agency (Curran, 2011). As Herman and Chomsky (1988) argue in their pioneering work '*Manufacturing Consent'*, media organizations are often required to operate within a broader system of power relations, which then ends up influencing news content. Editorial independence is vital in these moments because more often than not, it has the final say in how a story is shaped and presented to the world and that eventually shapes public discourse. It can help mitigate potential conflicts of interest as well as efforts to suppress specific viewpoints under the state's demands of journalistic responsibility (Allan and Zelizer, 2010).

Interestingly enough, and as predicted in the early days, the internet has indeed fostered a culture of communicative and consumer participation, where individuals can become creators and distributors of content (Jenkins, 2006; Bruns, 2008; Shiffman, 2008). Platforms such as Blogger, YouTube, Facebook, and Twitter/X have enabled greater cultural diversity, expanded the range of perspectives available, and even facilitated grassroots movements. This development also aligns with theories of participatory democracy, which emphasize the empowerment of individuals in collective decision-making processes (Macpherson 1973; Held, 1996). The rise of 'citizen journalism', which is individuals without formal journalistic training reporting on events and issues, was initially heralded as a democratizing force, particularly in regions with limited media plurality (Díaz Noci, 2013; Mpofu 2015, 2016; Zeng et al., 2019; Luo & Harrison, 2019).

However, there are inherent limitations to what the internet can and cannot do to create an informed citizenry. There are inherent limitations to the idea that digital platforms and citizen journalism can fully compensate for the decline of professional journalists and established news organizations. The depth of knowledge, source development, verification processes, and sustained coverage provided by experienced beat reporters and institutional journalism are difficult to replicate through piecemeal efforts or unpaid labor (Murnion & Healey, 1998; Hampton & Wellman, 2001; Karlsson et al, 2019). More importantly, the digital revolution we have witnessed firsthand has a significant dark side. The ease with which partisan news, misinformation, and disinformation can spread via curated news preferences and algorithmic amplification poses a tangible threat.

High-profile examples, as mentioned earlier, include the use of Facebook by Myanmar's military to incite ethnic cleansing against the Rohingya community, and the documented efforts by Russian propagandists to exploit social media fault lines to foment political division during U.S. elections (McCarthy, 2017; Mozur, 2018; Warofka, 2018). Analyzing the role of media with a focus on emerging technologies like the internet in eight nondemocratic countries, including China, Cuba, Singapore, and Egypt, a research study concluded that the internet is "challenging and helping to transform authoritarianism," but the internet alone is unlikely to cause its downfall (Kalathil & Boas, 2003). The increasing reliance on social media for news consumption tends to trap users in personalized news bubbles, limiting exposure to diverse viewpoints. Studies indicate that the sharing of false news is often correlated more with partisan affiliation than with ignorance (Osmundsen et al., 2021). Platform algorithms, which have been primarily designed to maximize user engagement for advertising purposes, amplify emotionally charged and partisan content, thereby contributing to political polarization and a decline in civil discourse (Hasell, 2020).

Overall, the economic statistics paint a stark picture of this decline over time. Newspaper revenues plummeted from over $50 billion in 2005 to less than half that, around $20 billion, in under two decades. Newsroom employment has suffered dramatically, with overall numbers falling by almost 60 percent between 2007 and 2015, and positions like staff photographers being cut by as much as 80 percent (Cagé, 2016; Abernathy, 2022). These factors – declining revenues, staff cuts, a potential shift to softer or sensationalized content, and falling media trust – are not isolated issues but rather components of a self-reinforcing cycle of decline in commercial news production and dissemination.

With the legacy advertising model of newsrooms severely disrupted and revenues in freefall, news organizations are forced into layoffs and budget cuts, which then diminishes their capacity to produce in-depth, high-quality hard news. To attract remaining audiences or generate clicks with fewer resources, there may be a shift towards cheaper-to-produce, sensationalized, or syndicated content. This, in turn, can lead to a decline in perceived news quality and credibility, further eroding public trust. Diminished trust and relevance can lead to a further decline in readership or willingness to pay for news, exacerbating the revenue shortfall and perpetuating the doom cycle. This downward spiral makes it exceedingly difficult for commercial news organizations to recover without fundamental business model changes or external support. It also creates an environment where "ghost newspapers" – publications that exist in name but have little original reporting capacity – can proliferate, further damaging public trust and leaving communities uninformed (Abernathy, 2020). This is precisely the pressure that makes news outlets vulnerable to aggressive financialized takeovers, such as those by private equity and hedge fund firms, while the end result is the proliferation of news deserts that represents the ultimate culmination of this cycle of decline.

Chapter 3

Greedy Money In Local Newsrooms: A Study Of Electoral Competitiveness

3.1

Introduction

The decline of local journalism and the growing concentration of media ownership have raised serious concerns about the health of democracy in the United States. Local newspapers, once vital community institutions that fostered accountability and civic engagement, now face acute economic pressures and frequent ownership changes. In particular, private equity (PE) and hedge fund firms, which we will refer to as *greedy money* interchangeably, driven by short-term profitability, are rapidly expanding their foothold in local media. Extensive research demonstrates that robust local journalism strengthens democratic participation by delivering critical political information to voters (Besley & Burgess, 2002; Snyder & Strömberg, 2010; Barthel et al., 2016; Hamilton, 2016; Ellger et al., 2024). Conversely, research links weakened local news coverage with lower voter turnout, less split-ticket voting, and diminished accountability (Gentzkow et al., 2011; Hayes & Lawless, 2018; Darr, 2018; Gao et al., 2020; Rubado & Jennings, 2020). While many studies have examined the effects of newspaper closures, fewer have investigated the subtler impact

of coverage erosion when newspapers remain open but are hollowed out under profit-maximizing ownership.

Our study addresses this gap by focusing on how PE-and-hedge-fund acquisitions of local newspapers affect electoral competitiveness, specifically through changes in vote margins. We hypothesized that the short-term profit incentives driving newsroom cutbacks and diminished local coverage would reduce electoral competition. Drawing on newspaper ownership data, the American Local Government Elections Database, and demographic controls, we employ a stacked difference-in-differences design with an event study specification to isolate the causal effect of these acquisitions. This method aligns acquisition events across different counties and time periods, allowing us to trace dynamic effects.

The results reveal unexpected patterns: rather than finding straightforward democratic decline, we document a paradox: elections become dramatically less competitive (with vote margins increasing by approximately 20 percentage points on average, and spiking to 32-48 percentage points, one-year post-acquisition) while simultaneously experiencing surges in voter mobilization, candidate entry, and the collapse of incumbent advantages. This pattern of an immediate disruption followed by a form of partial reversal suggests *greedy money* ownership doesn't only degrade local newsrooms' ability to serve its democratic duties but fundamentally reorganizes local political dynamics.

Our findings suggest that preserving competitive local elections requires attention not just to preventing newspaper closures but to the quality and ownership structure of surviving news organizations. As *greedy money* continues expanding its control over local media,

understanding these nuanced effects becomes essential for crafting policies that sustain both viable journalism and a vibrant democratic processes.

3.2

Literature Review

Media Ownership and Democracy

Media pluralism theory posits that diverse ownership of media sources and platforms promotes varied viewpoints and significantly reduces the potential for information manipulation by powerful entities (Doyle, 2002; Baker, 2006). Numerous studies show that media ownership, long linked to democratic health, impacts information dissemination and political engagement. The critical link between media ownership and democratic health illustrates how ownership structures influence information dissemination, political engagement, and ultimately democratic health (McChesney, 2000; Napoli, 2001; Hamilton, 2011).

As the proverbial fourth estate, a free and independent press guided by public service principles plays a pivotal role in ensuring government accountability, informing citizen decision-making, and monitoring political actors (Besley & Prat, 2006). Empirical evidence indicates that areas with higher newspaper circulation experience more responsive governance while lower newspaper circulation translates to citizens knowing less about their political representatives, voting at lower rates (Besley & Burgess, 2002; Snyder & Strömberg, 2010; Shaker, 2014). Newsrooms with public service ideals, distinctively insulated from commercial pressures, are often better positioned to provide sustained reporting and to facilitate informed public discourse critical for democratic participation (Cushion, 2012; Newman, 2020).

However, the core tension arises from the economic challenges inherent in journalism. While journalism yields vital public goods, the financial viability of local news remains precarious (Hamilton, 2016). These economic pressures, a remnant of the centuries-old marriage of convenience and a legacy of advertising-fueled capitalism with news, frequently weaken journalistic integrity and democratic accountability (Peterson, 2021; Usher, 2021). Notably, foregoing the public service role of media, especially under private-equity-and-hedge-fund ownership – which emphasizes short-term profitability and operational efficiency – has been shown to reduce investment in resource-intensive journalism, contributing to the erosion of civic and investigative reporting crucial for democratic functioning (Pickard, 2019; Abernathy & Franklin, 2022; Ewens et al., 2022). Such changes raise concerns about the long-term impact of solely profit-seeking, financialized media ownership on democratic engagement and governance.

Local Journalism's Impact and Influence

The decline of local journalism affects not only voter behavior but also political accountability. In 2018, Hayes and Lawless found that reduced local news coverage leads to lower voter awareness and democratic engagement. Research on municipal governance shows that government inefficiency and corruption increase when newspapers close, as local officials face less scrutiny (Gao et al., 2020). This accountability mechanism is particularly important in local contexts where citizens rely primarily on local sources for information about their representatives and the limited and fleeting nature of national media attention.

Importantly, the absence of local news also contributes to political polarization. Darr et al. (2018) found that areas with declining local journalism saw increases in straight-ticket voting, suggesting that nationalized media consumption replaced local issue awareness. This shift has broader implications for governance, as representatives potentially prioritize party loyalty over local community concerns in the absence of media oversight (Moskowitz, 2021). The substitution of local news by social media and digital platforms has further exacerbated these problems. Research shows that broadband internet access increases partisan hostility, suggesting that the internet and social media do not adequately substitute for local journalism's role in fostering civic discourse (Lelkes et al., 2017). Similarly, Allcott and Gentzkow (2017) demonstrated that social media platforms increase exposure to misinformation while in 2020, Levy found that algorithmic news curation on platforms like Facebook limits exposure to diverse viewpoints. These findings suggest that the decline of local journalism creates an information vacuum that is often filled by less reliable, more partisan sources that may not support informed civic engagement (Vosoughi et al., 2018).

Comparative research in other democracies reinforces the link between local journalism and electoral competitiveness. Evidence from Switzerland show that "newspaper congruence" – alignment between local news and community issues – boosts electoral participation in municipal elections (Kübler & Goodman, 2018). In Japan, local newspaper market share inversely correlates with government corruption, supporting the role of local media in political accountability (Yazaki, 2017). Falck et al. (2014) show that internet availability, which often replaces traditional news consumption, was associated with decreased voter turnout in Germany. Gavazza et al. (2019) reported similar findings in the UK, where internet usage reduced political participation by displacing news consumption.

Electoral Competitiveness Metrics and Democratic Outcomes

Schumpeter (1962) described democracy as a competitive process where electoral outcomes depend on candidate performance in tightly contested races. Similarly, Dahl's (2008) theory of polyarchy underscores public contestation as essential for democracy, arguing that elections must be competitive to maintain democratic legitimacy. These perspectives are complemented by rational-choice models which emphasize that voters are more likely to participate when their votes have a higher chance of influencing the outcome – a condition more likely in closely contested elections (Downs, 1957; Riker & Ordeshook, 1968).

To that end, electoral competitiveness serves as a crucial indicator of democratic vitality, typically measured through proxies such as vote margins, candidate entries, and voter turnout (Snyder & Strömberg, 2010). Vote margin – defined as the difference in vote share between the winning candidate and the runner-up – provides critical insight into electoral competitiveness and democratic health. A longstanding body of research hypothesizes that closer elections generate higher turnout because when outcomes are uncertain, voters have greater incentive to participate as each vote is more likely to be pivotal in deciding the electoral outcome (Olson, 1965). Conversely, in races with foregone conclusions, the marginal impact of a single vote is minimal, potentially depressing voter turnout. Empirical studies consistently support this theoretical link. In their meta-analysis of over 100 aggregate-level studies worldwide in 2016, Cancela and Geys concluded that tighter electoral contests

are generally associated with higher turnout rates, although the effect size varies by context. This finding has also proven robust across different countries and levels of elections, suggesting a broadly applicable pattern (Fraga & Hersh, 2018).

Crucially, new research designs have moved beyond correlation to establish causation. Recent studies have used improved methodologies and refined techniques, including better measures of expected closeness rather than just ex-post margins, that have strengthened causal identification. These confirm that anticipated tight races boost voting, even after controlling for individual parties' mobilization activities. This indicates that voters respond to competitiveness itself, and not only to campaign efforts. A notable example is the study of Swiss national referenda, which leveraged the timing of poll releases (Bursztyn et al., 2023). The authors examined daily mail-in voting data and found that when a poll was released showing a referendum contest to be very close, voter turnout jumped immediately afterward.

Research also reveals that vote margins significantly influence candidate behavior. Narrow margins signal potential vulnerability of incumbents, prompting greater candidate entry and thus fostering competitive political environments. Conversely, large victory margins discourage challengers, potentially reinforcing incumbent advantage and reducing electoral competitiveness in subsequent elections (Jacobson & Kernell, 1981; Cox & Katz, 1996; Stone et al., 2004).

An important, and arguably understudied, aspect is the crucial role that media plays in shaping perceptions of electoral competitiveness. The presence of robust local media appears to create an environment where such political competition can flourish (Hayes & Lawless, 2018; Schulhofer-Wohl & Garrido, 2013). Research indicates that areas with strong local

newspapers have more candidates per race, whereas news deserts – areas without access to critical information needs – experience a rise in uncontested elections (Rubado & Jennings, 2020). Media coverage highlighting close races tends to increase voter turnout and engagement, whereas coverage indicating an inevitable outcome can discourage participation (Gerber et al., 2008; Sides et al., 2022). Thus, media dynamics interact closely with vote margins, influencing democratic outcomes by shaping voter perceptions and behaviors.

The influence of local newspapers on electoral outcomes can operate through multiple channels beyond direct readership, particularly through the intermedia agenda-setting processes (Harder et al., 2017; Stern et al., 2020). While newspapers continue to set the agenda for other media outlets, with television, radio news, and social media drawing heavily on original newspaper reporting for their local political coverage, this cascading effect means that even citizens who never read their local newspapers are influenced by newspaper-originated content through secondary channels (Vonbun et al., 2016; Buturoiu et al., 2023; Su & Xiao, 2024).

Research indicates that local newspapers remain primary agenda-setters in their communities, with their story selection influencing not only other media but also political campaign strategies and voter perceptions of salient issues (Vargo & Guo, 2017). Thus, when *greedy money* ownership reduces newspapers' capacity for local political coverage, this disruption potentially reverberates throughout the entire local information ecosystem, affecting how candidates campaign, which issues gain prominence, and ultimately how competitive local elections are given local newsrooms often provide the only systematic

coverage of candidates and issues, making their agenda-setting function irreplaceable even as direct readership declines.

Empirical evidence also suggests that when local journalism declines, winning margins increase, signaling weaker opposition and reduced voter engagement (Darr et al., 2018; Chapp & Aehl, 2021; Rubado & Jennings, 2020). Darr et al. (2018) provided compelling evidence of this relationship by examining the impact of newspaper closures on electoral outcomes through the study of split-ticket voting at a county level. Their research found that counties that lost newspapers experienced a significant increase in partisan voting patterns and less competitive elections – which the authors attributed to reduced availability of local policy information, which led voters to rely more heavily on partisan cues.

Greedy Money and Local Journalism

Research on private-equity-and-hedge-fund ownership of local newspapers has revealed significant changes in newsroom staffing, content composition, and community engagement. Ewens et al. (2022) conducted one of the first large-scale analyses of private equity in local journalism, finding that acquired newspapers experienced a 7.3% reduction in reporters and an 8.9% decline in editors. These findings align with qualitative reports that firms such as Gannett and Alden Global Capital aggressively implement the gutting of local newsrooms, reducing local journalism capacity by a substantial magnitude and leaving only the discarded remains of a functional newsroom (Abernathy & Franklin, 2022). According to Ewens et al. (2022), newspapers that transition to private equity ownership publish 16.7%

fewer articles following acquisition. These reductions often target beats with civic relevance, with political and general assignment reporting experiencing the most significant cuts (Soloski, 2019).

Similarly, when Rupert Murdoch's *News Corporation* acquired the *Wall Street Journal* in 2007, the paper exhibited significant editorial changes: government intervention support dropped from 46% to 22%, coverage became substantially more negative toward Democrats and more positive toward Republicans compared to newspapers that did not undergo ownership changes during the same period (Wagner & Collins, 2014). *News Corporation*, for instance, has been documented investing substantial sums of money in service of promoting Rupert Murdoch's ideological beliefs. This ideological commitment manifests in systematic content changes: the news organization had a company policy supporting the Iraq invasion in 2003 and created formal relationships with conservative institutes to publish op-eds opposing government action on domestic issues (McKnight, 2010).

These targeted reductions and their adverse consequences are also not just limited to print newspapers. Research shows that when Sinclair Broadcasting acquires local news stations, coverage of climate change decreases and shifts away from scientific content, resulting in reduced public awareness about climate change (Pierce, 2022). Arguably a case of "agenda-cutting effect" where media ownership influences news content in ways that shape public opinion, with important implications for media regulation policy. It is this focus on reducing costs by targeting specific areas/beats that is particularly concerning, as they represent important values and core functions that newspapers traditionally serve in democratic communities.

Importantly, studies also indicate that *greedy money's* ownership shifts content away from local affairs toward more syndicated and national stories. Research demonstrates that after an acquisition, local political coverage declined, syndicated national content increased, fewer original investigative reports were published, and there was greater reliance on centralized content production across these news outlets (Ewens et al., 2022; Martin & McCrain, 2019; Peterson, 2021). This shift toward nationalized content undermines the local-first nature of community newspapers that have historically supported civic engagement.

While private equity ownership has been linked to higher digital engagement and improved financial stability, research suggests that such newspapers are less likely to shut down than independently owned counterparts, possibly due to operational efficiencies. However, critics argue that this financial stability comes at the cost of substantive local news coverage, with many papers becoming "ghost newspapers" – operating in name but lacking original reporting (Abernathy, 2020; Napoli et al., 2018). As these local newspapers are either gutted completely or left to die slowly without adequate resources, no other local outlets can potentially fill that information vacuum, which adversely impacts political outcomes and civic engagement (Hindman, 2008; Waldman, 2011; Schulhofer-Wohl & Garrido, 2013; Howells, 2015).

***Greedy Money*: Business Model and Impact on News Organizations**

The concentration of media ownership has reached concerning levels in the United States. Abernathy and Franklin (2022) report that the largest 25 newspaper chains own a third of all newspapers, including 70% of all dailies. Investment firms, including private equity

organizations, own more newspapers today than the combined total owned by the 16 largest private newspaper companies and the three largest public ones (Soloski, 2018). This level of toxic media concentration limits media pluralism and creates significant risks for democratic discourse when the owners prioritize financial returns over the public service ideals of a free press.

While private equity and hedge funds represent distinct investment vehicles with different regulatory structures and operational strategies, their approaches to investment often exhibit differences that warrant analytical distinction. Private equity seeks to change how target firms are run through operational restructuring, including changes to scale and scope of operations, asset modifications, and debt leverage changes –interventions that form the basis of their returns (Douglas & Geoffrey, 2018). In contrast, hedge funds may adopt either activist or hands-off approaches, often basing returns on the timing of share retention rather than operational transformation. Hedge funds typically target more profitable firms and increase their relative ownership through debt, derivatives, and options, focusing on broad corporate governance issues and cash flow agency costs rather than longer-term investment strategies or day-to-day managerial practices (Clifford, 2008; Klein & Zur, 2009). Regarding operational involvement, private equity takeovers usually involve heavy debt leverage and often entail complete takeover and delisting of firms, either replacing existing management teams or subordinating them to new agendas (Goergen et al., 2014). Hedge funds, conversely, try and have an impact through market mechanisms and shareholder activism without necessarily pursuing operational control (Kahan & Rock, 2007).

Despite these general differences, their approaches to newspaper ownership exhibit remarkable similarities that justify our analytical grouping. Private equity firms typically employ leveraged buyouts with 3–7-year exit horizons, while hedge funds may engage in more liquid investment strategies (Kaplan & Stromberg, 2009; Appelbaum & Batt, 2014). Both types of financial owners prioritize extracting maximum returns through similar mechanisms: debt-financed acquisitions, aggressive cost reduction, and asset monetization within a timeframe that does not align with the long-term investments needed to sustain quality journalism and community engagement (Peterson, 2021; Ewens et al., 2022).

The cases of Alden Global Capital (a hedge fund) and Apollo Global Management (a private equity firm) illustrate this convergence; despite their different fund structures, both have implemented nearly identical playbooks at their newspaper properties, including extensive newsroom staff reductions and consolidation of news production (Abernathy & Franklin, 2022; Peterson & Dunaway, 2023). There is an operational similarity between the two investment types in the newspaper sector given they both focus on cost-cutting, asset sales, and digital transformation to improve short-term financial metrics, even if these actions undermine long-term journalistic capacity. Thus, it makes the institutional distinction between private equity and hedge fund ownership less meaningful than their shared departure from traditional newspaper ownership focused on long-term public service journalism (Coppins, 2021). We prefer to group these similar newsroom owners together as *greedy money* to capture their common orientation toward newspapers as financial assets rather than civic institutions.

Local newsroom acquisitions by *greedy money* often involves leveraged buyouts, where the acquired newspaper's assets are used as collateral for the debt used to finance the acquisition (Abernathy & Franklin, 2022; Paladhi, 2023). This creates immediate financial pressure, as the newspaper must generate sufficient revenue to service this debt in addition to covering operating costs. The impact on newsrooms is often immediate and severe. For example, when GateHouse Media (owned by New Media Investment Group) acquired Gannett in 2019, it took on a $1.8 billion loan at an 11.5% interest rate and post-merger, the newly formed company announced plans to cut $300 million in annual costs (Arbel, 2019). The interest payments alone could have funded hundreds of journalist positions, according to industry analyses. This financial structure creates strong incentives to cut costs, particularly in labor-intensive areas like newsrooms. By the end of 2022, Gannett's U.S. employee count had declined to 11,200 from 25,000 in late 2019 (Benton, 2023). This pattern of aggressive cost-cutting is typical of PE ownership across industries but has particularly severe implications for journalism given its public good characteristics (Davis et al., 2019; Gupta et al., 2020).

The literature reviewed thus far establishes important connections between media ownership structures, local journalism capacity, and democratic outcomes including electoral competitiveness. However, several gaps remain in our understanding of these relationships. First, while studies have documented the impact of newspaper closures on electoral outcomes (Schulhofer-Wohl & Garrido, 2013; Darr et al., 2018), less research has examined how changes in ownership structure – particularly transitions to private equity ownership – may affect electoral competitiveness in communities where newspapers continue to operate. Second, most existing research focuses on binary outcomes (e.g., newspaper presence versus absence) rather than examining the gradual erosion of news capacity that often follows

ownership changes. This approach may underestimate the democratic consequences of what Abernathy (2020) terms ghost newspapers – publications that remain in operation but with severely diminished reporting capacity. Our study addresses this gap by focusing specifically on changes in electoral competitiveness following private equity acquisition of local newspapers.

Third, methodological challenges have limited causal inference in this area. The staggered nature of acquisitions across different newspapers and regions creates analytical complexities. Our study employs a more rigorous stacked difference-in-differences design to overcome these challenges and provide more credible causal estimates.

Overall, the existing literature reinforces a concerning pattern wherein an aggressively financialized ownership leads to reduced newsroom capacity, less local coverage, and potentially diminished electoral competitiveness and civic engagement. As these new owners restructure local newsrooms, ongoing research is needed to assess its broader democratic implications. This study contributes to this effort by providing empirical evidence on the relationship between private equity ownership of local newspapers and electoral competitiveness in the communities they are supposed to serve.

3.3

Methodology

A unique challenge in our study is that the "treatment" – private equity acquisition of local newsrooms – occurs in different counties at different points in time as various local newspapers get acquired by firms. Traditional two-way fixed-effects Difference–in–Differences (DiD) models have been shown to yield biased estimates in such staggered treatment settings, especially if treatment effects vary over time or across groups (Sun & Abraham, 2021).

To address this, we implement a stacked DiD approach, which essentially transforms multiple event occurrences into a series of aligned mini-experiments and then aggregates the results. This addresses issues arising from staggered treatment timing across different counties and over multiple years, which traditional two-way fixed-effects DiD methods fail to handle adequately (Goodman-Bacon, 2021). Our approach involves aligning multiple PE acquisition events into separate mini-experiments (±3-year event windows) and subsequently stacking these datasets to estimate an overall average treatment effect. Each county experiencing a PE acquisition event forms a treatment cohort compared against contemporaneous control counties – those either never treated or treated at a later point of time – thus preserving counterfactual validity (Cengiz et al., 2019). The key assumption in such an approach is that absent treatment, the treated counties would have followed similar trends to control counties, also referred to as parallel trends assumption (Callaway & Sant'Anna, 2021). The stacked DiD

design ensures that never-treated counties or not-yet-treated counties serve as controls for each treatment cohort, maintaining the integrity of the control group counterfactual.

Our analysis combines several unique datasets, each presenting distinct challenges and limitations that shaped our methodological approach. First, we utilize newspaper ownership data derived from a comprehensive database of US newspapers ownership transitions. Compiled by Peterson & Dunaway (2023) using over 13,000 digitized media directory pages, this dataset measures newsroom staffing of 211 major newspapers from 2005 to 2022, tracking ownership changes over the period. Using the database, we focus on the newspaper chains that have all been mentioned frequently as exemplars of the "profit-first" trend in PE-and-hedge-fund-media ownership: Digital First Media, GateHouse, New Media/GateHouse, MediaNews Group, Gannett, and tronc/Tribune (Coppins, 2021; Abernathy & Franklin, 2022; Peterson & Dunaway, 2023; Susca, 2023; Paladhi, 2023; Shafer, 2024). We construct a binary treatment indicator equal to 1 for newspapers owned by these chains and 0 otherwise. For each county, we determine the acquisition year as the first year in which any newspaper in the county transitioned to private equity or hedge fund ownership.

Second, we incorporate the American Local Government Elections Database (ALGED), which provides detailed information on local election outcomes across U.S. counties (de Benedictis-Kessner et al., 2023). From this database, we extract voting results to construct our primary dependent variable: electoral competitiveness with vote margin as the proxy – the difference in vote share between the winning candidate and the runner-up in each local electoral contest. The ALGED database is made up of "election returns from about 78,000 unique candidates in about 57,000 contests in 1,747 cities, counties, and school

districts from 1989–2021" (de Benedictis-Kessner et al., 2023). To construct our specific dataset, we use information from the ALGED database about local elections for the positions of mayors, city councils, county executives, county legislatures, sheriffs, and prosecutors. For each county-year observation, we calculate average vote margins for all available individual electoral contests and then compute the average vote margin at the county-year level.

There is a critical limitation that emerged during data integration and validation: while our treatment dataset identified 12 unique counties experiencing local newsroom acquisitions between 2010 and 2022, the ALGED database contained sufficient pre-treatment election data for only three of these counties – Wayne County, MI (2012 acquisition), Orange County, NY (2014 acquisition), and Anne Arundel County, MD (2015 acquisition). This constraint, while limiting our sample size, necessitated a more rigorous approach to control county selection that prioritizes the fundamental identifying assumption of our research design.

Our three treatment counties also capture distinct slices of local democracy. With 1.8 million residents, Wayne County, Michigan encompasses Detroit and 42 surrounding municipalities, making it Michigan's most populous and diverse county. The county's significant Black population, median household income of $45,000 (under the national average), and strong Democratic lean reflect its urban, working-class character.

Orange County, New York presents a different profile. As per 2023 data, the county had under half a million residents, a growing Hispanic population (23%), a higher-than-average median income ($95,000) and a nearly even partisan split representing the purple, middle-income communities where local journalism has traditionally plays a crucial role in bridging divides and fostering civic dialogue. Notably, GateHouse acquired the *Times Herald-*

Record in 2014, just one year after GateHouse itself emerged from bankruptcy proceedings, having filed for Chapter 11 protection in 2013 with $1.3 billion in debt against $433.7 million in assets (Pearson & Kary, 2013). The timing of the acquisition was also during rapid demographic and economic change with rising property values from New York City expatriates, and increasing political polarization between its urban centers and rural areas.

Lastly, Anne Arundel County, Maryland completes our trio of treatment counties. Home to both the state capital Annapolis as well as Washington D.C. bedroom communities, the county has a little over half a million residents. In 2023, the median household income was $117,650 which was well above the national average. Tribune/tronc's acquisition of the *Capital Gazette* occurred in a county with high educational attainment, strong civic engagement traditions, and competitive but Democrat-leaning politics.

This diversity – from post-industrial urban to affluent suburban, from solidly Democratic to politically competitive, from majority-minority to predominantly white – somewhat transforms our potential limitations. Statistical tests confirm no significant differences between treatment and control groups on observable characteristics (all p-values > 0.05), supporting our identification strategy. While only three counties limit statistical generalization, their heterogeneity enables examination of whether private equity ownership systematically disrupts democratic competition across fundamentally different community types – from post-industrial urban cores to affluent suburbs, from solidly Democratic to politically competitive jurisdictions.

In our methodology, the fundamental challenge is that we cannot observe what would have happened to treated counties in the absence of private-equity-and-hedge-fund

acquisition. Traditional matching approaches in DiD studies often begin with propensity score matching or distance-based matching on observable characteristics, assuming that balancing pre-treatment covariates ensures parallel trends (Stuart et al., 2014). However, this approach also conflates two distinct concepts: baseline similarity and trend similarity. Counties may appear similar on demographic and socioeconomic dimensions at a given point in time yet follow divergent electoral trajectories due to unobserved political, cultural, or institutional factors (Abadie et al., 2010).

We therefore adopt a more direct approach that prioritizes the parallel trends assumption – the cornerstone of DiD identification. Rather than assuming that demographic similarity implies parallel electoral trends, we empirically test for parallel pre-treatment trends in our outcome variable across potential control counties. This approach aligns with recent methodological advances emphasizing that the validity of DiD estimates depends primarily on the parallel trends assumption rather than baseline balance (Roth et al., 2023). By directly examining pre-treatment electoral outcomes, we identify control counties whose political dynamics evolved similarly to our treatment counties pre-acquisition, regardless of their demographic composition.

Our control selection process proceeds in two stages. First, we calculate pre-treatment trends in vote margins for all potential control counties in the ALGED database, comparing them to each treatment county over the three years preceding acquisition. We compute similarity scores based on the absolute difference in trends, identifying counties with the most parallel pre-treatment trajectories. This process yielded two sets of control counties: (1) preferred controls demonstrating the strongest parallel trends – San Joaquin County, CA;

Riverside County, CA; and Champaign County, IL; and (2) alternate controls for robustness checks – Ellis County, TX; Fayette County, GA; Prince George's County, MD; Outagamie County, WI; Champaign County, IL; and Sedgwick County, KS.

Third, we utilize demographic and socioeconomic data from the U.S. Census Bureau's American Community Survey (ACS) to control for county-level characteristics that might influence both newspaper acquisitions and electoral outcomes. These variables include population density, racial composition (White, Black, Asian, and Hispanic), educational attainment (high school graduation rate and bachelor's degree), median household income, and income inequality measured by the Gini index. The inclusion of these controls is consistent with prior research demonstrating their relevance to political participation and electoral dynamics (Moskowitz, 2021; Paladhi, 2025; Rubado & Jennings, 2020; Stonbely, 2023). Importantly, we incorporate these covariates as controls in our regression specification rather than as primary matching variables, recognizing that their role is to improve precision rather than identification.

Finally, we incorporate data from the University of North Carolina's News Desert Database to identify particularly vulnerable counties – those with two or fewer daily newspapers at the time of private equity acquisition. Previous research indicates that democratic engagement suffers most significantly when counties have limited news sources (Gao et al., 2020; Gentzkow et al., 2011), making these locations especially important for understanding the democratic implications of private equity ownership. Each of our control counties, across the same acquisition years, also meets the counterfactual requirement that it

has a local newsroom that was either never-acquired by *greedy money*, or had more than two dailies at the county level in case of a takeover.

Our final analytical sample consists of three treatment counties that experienced private equity acquisitions between 2012 and 2015, combined with control counties demonstrating parallel pre-treatment trends, observed over multiple local election cycles. While this sample size is constrained by data availability, the robustness of our findings across different control group specifications – with consistent effect magnitudes and strong statistical significance in our alternate specification – provides confidence in our results.

To that end, our key hypothesis for this study are:

H1: Winner vote margins increase in counties that witness a P.E-or-hedge-fund acquisition

H2: Voter turnout decreases in counties that witness a P.E-or-hedge-fund acquisition

H3: Lesser number of candidates run for office in counties that witness a P.E-or-hedge-fund acquisition

Mathematically, our regression model is:

$$\text{margin}_{ict} = \beta_0 + \Sigma_{k \neq -1} \beta_k \, (\text{treated}_i \times 1[\text{t-t*=k}]) + \delta_{ic} + \lambda_{ct} + \epsilon_{it}$$

where:

- margin_{ict} represents the vote margin in county i for event-cohort c in year t
- β_0 is the intercept

- $\Sigma_{k \neq -1} \beta_k$ helps estimate treatment effects for each event time k = {-3, -2, 0, 1, 2, 3}, excluding k = -1 since that serves as our reference period, and
- ($treated_i \times 1[t-t^*=k]$) creates dummy variables that equal 1 only when county *i* is treated and is exactly *k* years from its acquisition year, allowing us to trace how effects evolve from 3 years before to 3 years after treatment
- δ_{ic} represents county-by-cohort fixed effects
- λ_{ct} represents year-by-cohort fixed effects
- ϵ_{it} is the error term

This event study specification allows treatment effects to vary by time since acquisition. The omitted category (k = -1) serves as the reference period, representing one year before treatment, and the last pre-treatment year, which in turn offers a clean baseline immediately before acquisition. It is also a standard choice in an event study designs as it maximizes statistical power for detecting pre-trend violations while offering straightforward interpretation of post-treatment effects. Pre-treatment coefficients (β_{-3} and β_{-2}) test the parallel trends assumption, while post-treatment coefficients reveal the evolution of P.E-and-hedge-fund ownership's impact on electoral competitiveness.

3.4

Results

Table 1 presents the three treatment counties with sufficient pre-treatment election data in the ALGED database: Wayne County, MI (2012 acquisition), Orange County, NY (2014 acquisition), and Anne Arundel County, MD (2015 acquisition). Table 2 displays the two sets – preferred counties and alternate counties – we use as our control. While our initial treatment dataset identified 12 counties experiencing private equity acquisitions between 2010 and 2022, data limitations constrained our analytical sample to only three treatment counties with adequate pre-treatment electoral observations for causal inference.

Figure 1 presents the parallel trends assessment for our preferred control group. The pre-treatment period (2010-2012) shows reasonably parallel trends across key outcomes, particularly for vote margins, supporting the identifying assumption of our difference-in-differences design. The stacked dataset comprises 52 observations across the three treatment cohorts (2012, 2014, and 2015).

Table 1. Treatment counties

County	FIPS	Newsroom acquisition year
Wayne County, MI	26163	2012
Orange County, NY	36071	2014
Anne Arundel County, MD	24003	2015

Table 2. Control counties

Control Set	County	FIPS
Preferred control	San Joaquin County, CA	6077
	Riverside County, CA	6065
	Champaign County, IL	17019
Alternate control	Ellis County, TX	48139
	Fayette County, GA	13113
	Prince George's County, MD	24033
	Outagamie County, WI	55087
	Champaign County, IL	17019
	Sedgwick County, KS	20173

Note: Both control sets satisfy parallel-trends assumption but offer different robustness tests. Champaign County, IL appears in both sets due to strong pre-treatment parallel trends.

Fig. 1: Parallel trends assessment for preferred control group

Note. Pre-treatment trends (2010-2012) for key electoral outcomes comparing treatment and preferred control counties. Vertical dashed lines indicate acquisition years. Vote margin represents the percentage point difference between winner and runner-up. Turnout proxy is measured as total votes per contest. The parallel pre-treatment trends support the identifying assumption of the difference-in-differences design.

Table 3 displays the event study coefficients from our stacked DiD regression with preferred controls. The results reveal striking dynamic effects of private equity acquisition on

electoral competitiveness. Pre-treatment coefficients at $t = -3$ ($\beta = -0.003$, SE = 0.029, $p = .912$) and $t = -2$ ($\beta = -0.129$, SE = 0.114, $p = .260$) are statistically insignificant, supporting the parallel trends assumption. However, the post-acquisition period shows dramatic changes: while the immediate effect at $t = 0$ remains modest ($\beta = 0.058$, SE = 0.062, $p = .351$), we observe a significant spike at $t = 1$ ($\beta = 0.317$, SE = 0.029, $p < .001$), indicating elections became substantially less competitive one year after acquisition. This effect dissipates by $t = 2$ ($\beta = 0.011$, SE = 0.076, $p = .884$) and $t = 3$ ($\beta = -0.009$, SE = 0.238, $p = .970$). To contextualize the findings: a 32-48 percentage point increase in vote margins transforms a competitive election into a landslide, implying not just merely reduced competition but a potentially fundamental transformation of electoral dynamics.

Table 3. Event study coefficients from stacked DiD regression with preferred controls

Variable	β	*SE*	*p-value*
Intercept	.296	.12	.014*
$treated_i \times 1[t\text{-}t^* = -3]$	-.003	.029	.912
$treated_i \times 1[t\text{-}t^* = -2]$	-.129	.114	.26
$treated_i \times 1[t\text{-}t^* = -1]$	-	-	-
$treated_i \times 1[t\text{-}t^* = 0]$	.058	.062	.351
$treated_i \times 1[t\text{-}t^* = 1]$	.317	.029	<.001***
$treated_i \times 1[t\text{-}t^* = 2]$	.011	.076	.884
$treated_i \times 1[t\text{-}t^* = 3]$	-.009	.238	.97
R^2	.799	-	-
Adjusted R^2	.465	-	-

Note: N = 52 observations across three treatment cohorts. The dependent variable is vote margin and the model includes county-cohort and year-cohort fixed effects. $treated_i \times 1[t\text{-}t^* = k]$ indicates k years relative to private equity acquisition, with $t - t^* = -1$ as the omitted reference category. Standard errors clustered at county level.

*p < .05. **p < .01. ***p < .001.

The DiD estimates (Table 4) corroborate these findings across multiple outcomes. Vote margins increased by 0.198 percentage points, indicating reduced electoral competition. Interestingly, this reduction in competitiveness coincides with a dramatic increase in voter turnout (+25,991 votes per contest), a substantial decline in incumbent win rates (-0.240), and more candidates entering races (+0.212 per contest). The results are paradoxical – reduced political competition alongside increased voter participation – and challenges our conventional hypothesis about media ownership and democratic engagement. Importantly, these results also pose more questions in that PE-and-hedge-fund acquisitions of local newsrooms doesn't damage democracy in a straightforward manner but spurs a complex reorganization of local politics. The simultaneous increase in turnout and vote margins indicates voters are perhaps mobilized but increasingly unified in their choices, possibly reflecting information asymmetries or polarization effects – something that future studies can explore in greater detail.

Table 4. DiD estimates with preferred controls

Outcome variable	Pre-treatment mean	Post-treatment mean	DiD estimate
Vote margin	0.202	0.377	+0.198***
Voter turnout	20,856	44,695	+25,991***
Incumbent win rate	0.978	0.737	-0.240***
Candidates per contest	1.55	1.63	+0.212**

Note: Pre- and post-treatment means shown for treatment counties only. Vote margin measured as percentage point difference between winner and runner-up. Turnout measured as total votes per contest.

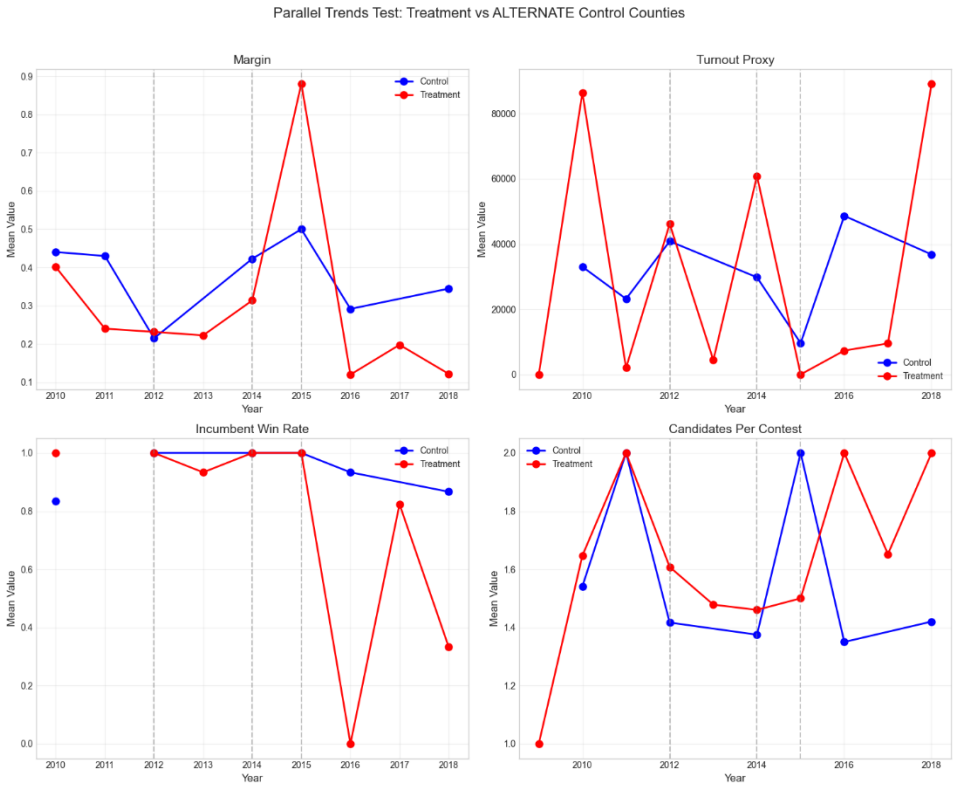
*p < .05. **p < .01. ***p < .001.

To assess the sensitivity of our findings to control group selection, we also repeated the analysis using alternate control counties selected through the same parallel trends criterion but providing greater geographic diversity. Figure 2 displays the parallel trends for this specification, showing reasonable pre-treatment alignment despite higher baseline levels for some outcomes.

Table 5 presents the event study results using alternate controls. The findings confirm and strengthen our main results. Pre-treatment coefficients remain insignificant (t = -3: β = -0.031, SE = 0.108, p = .774; t = -2: β = -0.151, SE = 0.075, p = .043), though the latter approaches significance. The post-acquisition spike at t = 1 is even more pronounced (β = 0.478, SE = 0.064, p < .001), representing nearly a 50-percentage point increase in vote margins. Notably, this specification also reveals a significant reversal at t = 2 (β = -0.088, SE = 0.029, p = .002), suggesting a dynamic adjustment process absent in the preferred control analysis.

The simple DiD estimates with alternate controls (Table 6) closely mirror those from preferred controls: vote margins increase by 0.178 percentage points, turnout rises by 23,599 votes per contest, incumbent win rates fall by 0.231, and candidates per contest increase by 0.126. The consistency of effect magnitudes across specifications despite different control groups and baseline levels strengthens confidence in our findings.

Fig. 2: Parallel trends assessment for alternate control group



Note: Pre-treatment trends (2010-2012) for key electoral outcomes comparing treatment and alternate control counties. Vertical dashed lines indicate acquisition years. While pre-treatment trends show greater divergence than with preferred controls, particularly for vote margins and candidates per contest, the alternate specification provides a robustness test with greater geographic diversity and a same-state match.

Table 5. Event study coefficients from stacked DiD regression with alternate controls

Variable	B	SE	p-value
Intercept	.334	.153	.028*
$treated_i \times 1[t\text{-}t^* = -3]$	-.031	.108	.774
$treated_i \times 1[t\text{-}t^* = -2]$	-.151	.075	.043*
$treated_i \times 1[t\text{-}t^* = -1]$	-	-	-
$treated_i \times 1[t\text{-}t^* = 0]$	.048	.221	0.829
$treated_i \times 1[t\text{-}t^* = 1]$	.478	.064	<.001***
$treated_i \times 1[t\text{-}t^* = 2]$	-.088	.029	.002**
$treated_i \times 1[t\text{-}t^* = 3]$	.07	.052	.177
R^2	.915	-	-
Adjusted R^2	.74	-	-

Note: N = 59 observations across three treatment cohorts. The dependent variable is vote margin and the model includes county-cohort and year-cohort fixed effects. $treated_i \times 1[t\text{-}t^* = k]$ indicates k years relative to private equity acquisition, with $t - t^* = -1$ as the omitted reference category. Alternate controls provide greater geographic diversity and include same-state match. Standard errors clustered at county level.

*p < .05. **p < .01. ***p < .001.

Table 6. DiD estimates with alternate control counties

Outcome variable	Pre-treatment mean	Post-treatment mean	DiD estimate
Vote margin	0.202	0.377	+0.178***
Voter turnout	20,856	44,695	+23,599***
Incumbent win rate	0.978	0.737	-0.231***
Candidates per contest	1.55	1.63	+0.126*

Note: Pre- and post-treatment means shown for treatment counties only. Results closely mirror preferred control specification despite alternate controls having higher baseline vote margins.

*p < .05. **p < .01. ***p < .001.

The robustness of results across control group specifications reveals a consistent pattern of electoral disruption following private equity acquisition of local newspapers. Rather than a simple decline in democratic engagement, we observe a complex transformation: elections become less competitive (larger victory margins) while simultaneously experiencing increased voter mobilization and challenger entry. The dramatic spike at $t = 1$ followed by partial reversal (particularly evident with alternate controls) suggests an immediate shock to the local political equilibrium followed by gradual adjustment.

These findings challenge simplistic narratives about media ownership and democratic health. The reduction in electoral competitiveness might reflect diminished local news coverage of political races, reducing voters' information about candidates and leading to larger victory margins. However, the concurrent increase in turnout and candidate entry suggests that private equity acquisition may paradoxically mobilize political participation—perhaps as communities react to perceived threats to local institutions. The collapse of incumbent advantage further indicates fundamental disruption to established political networks.

The consistency of results across different control specifications is particularly noteworthy given our constrained sample. While data limitations prevent us from examining all 12 originally identified treatment counties, the three counties with sufficient data show remarkably robust patterns. The alternate control specification, with its higher baseline vote margins (36.2% vs. 21.0%) and inclusion of a same-state match (Prince George's County, MD), provides an especially stringent robustness test that our findings pass convincingly.

Statistical power remains a limitation, as evidenced by wide confidence intervals for some estimates. However, the magnitude and significance of key findings – particularly the *t*

= 1 spike observed in both specifications – suggest economically meaningful effects that warrant attention from scholars and policymakers concerned with local media ownership and democratic governance.

3.5

Discussion & Limitations

Our analysis yields some interesting findings regarding the impact of *greedy money* acquisition of local newspapers on electoral dynamics. We observe significant disruption to local political equilibrium: elections become substantially less competitive while simultaneously experiencing dramatic increases in voter turnout, depressed incumbent win rates, and greater candidate entry. These results challenge conventional narratives about media ownership and democratic health, suggesting that private-equity-and-hedge-fund acquisition triggers complex political transformations rather than simple democratic decline.

Our findings necessitate reconceptualizing media ownership's role in democratic theory. Traditional accounts predict a linear relationship: concentrated ownership means reduced information means democratic decline. Instead, we document a disrupted equilibrium model where media ownership shocks triggers a potential system-wide reorganization. This aligns with complexity theories of institutional change rather than gradual erosion models (Pierson, 2004). To that end, media pluralism theory must be updated to accommodate not just ownership concentration's direct effects but also communities' adaptive responses to information ecosystem disruption (Doyle, 2002; Baker, 2006).

The temporal dynamics revealed in our event study provide crucial insights. The massive spike in vote margins at $t = 1$ (31.7 percentage points with preferred controls, 47.8 percentage points with alternate controls), followed by rapid dissipation, indicates an immediate shock to the political system rather than gradual erosion. This pattern aligns with

recent evidence that post-acquisition, these profit-fueled firms trigger immediate operational changes, including newsroom staff reductions and diminished local coverage (Ewens et al., 2022). However, our results suggest these changes potentially catalyze unexpected political mobilization rather than the democratic disengagement predicted by the "ghost newspaper" phenomenon (Abernathy, 2020).

Several mechanisms may explain these paradoxical findings. First, reduced local news coverage might create an information vacuum that advantages well-known candidates or those with greater name recognition, leading to larger victory margins. Simultaneously, the perceived threat to local institutions may mobilize civic engagement, explaining increased turnout and candidate entry. The collapse of incumbent advantage suggests that disrupted information flows may particularly disadvantage sitting officials who previously relied on routine news coverage to maintain visibility. This interpretation aligns with research showing that information shocks can destabilize political equilibria (Strömberg, 2004).

Second, compensatory mechanisms may emerge as communities respond to diminished traditional news coverage. Citizens may turn to alternative information sources, including social media, partisan outlets, or grassroots communication networks. While research demonstrates these alternatives often increase polarization and misinformation exposure (Allcott & Gentzkow, 2017; Levy, 2021), they may also mobilize previously disengaged voters, contributing to higher turnout despite—or because of—reduced electoral competitiveness. The increased candidate entry we observe suggests political entrepreneurs may recognize opportunities in this disrupted information environment. Future research could test these mechanisms by examining: one, campaign spending data to assess whether

information vacuums advantage wealthy candidates; two, social media activity to measure compensatory information seeking; and three, survey data on perceived threats to local institutions and civic mobilization.

Third, this 'disruption hypothesis' emerging from our analysis suggests PE-hedge-fund ownership doesn't simply degrade democratic quality but fundamentally transforms local political dynamics. The spike-and-reversal pattern, particularly evident with alternate controls, indicates a system experiencing shock, adjustment, and eventual stabilization at a new equilibrium. This dynamic process differs qualitatively from the gradual democratic erosion narrative, suggesting that communities may develop adaptive responses to media ownership changes.

Yet, several methodological considerations shape the interpretation of our results. Most critically, the small number of treated counties ($n = 3$) limits generalizability. While our results prove fairly robust across different control specifications, external validity remains constrained. Our treated counties share specific characteristics: a sizable population, Democratic-leaning in presidential elections, and a fairly diverse racial composition. Thus, these results may not extend to rural, homogeneous, or strongly Republican counties where different information ecosystems prevail – if at all.

Our approach to control selection, prioritizing empirical parallel trends over demographic matching, represents both a strength and limitation. While this method directly addresses the key identifying assumption of difference-in-differences designs (Roth et al., 2023), it may select control counties that differ substantially on unobserved dimensions. The consistency of results across preferred and alternate control groups partially alleviates this

concern, but we cannot rule out that our control counties share some unmeasured characteristic that influences their parallel pre-treatment trends.

The irregular timing of local elections compounds analytical challenges. Unlike studies examining annual outcomes, our analysis depends on elections occurring sporadically, creating compositional changes in our sample across event-time periods. This temporal sparsity not only reduces precision but may also introduce bias if election timing correlates with local political or economic conditions. The relatively small number of observations (52 with preferred controls, 81 with alternate controls) limits our ability to explore heterogeneous effects across election types or county characteristics.

Our reliance on vote margins as the primary outcome, while providing an objective measure of competitiveness, may not capture the full spectrum of democratic vitality. The paradoxical results – reduced competition alongside increased participation – highlight this limitation. Future research should examine additional outcomes such as issue diversity in campaigns, quality of political discourse, and citizen political knowledge to provide a more comprehensive assessment of ownership's democratic impacts.

The potential endogeneity of PE-and-hedge-fund acquisition timing remains a concern. Private-equity-and-hedge-funds may strategically target newspapers in counties experiencing economic decline, demographic transitions, or pre-existing political changes – all of these being factors that could independently influence electoral dynamics. While our parallel trends tests provide some assurance, we cannot definitively rule out that acquisition timing coincides with unobserved local shocks that drive our results.

Our study period (2009-2018) also coincides with dramatic transformations in media consumption patterns, including social media's rise and print readership's decline. The democratic implications of newspaper ownership changes likely evolved throughout this period as citizens' media diets shifted. Our static treatment effect estimates cannot capture this temporal heterogeneity in the relationship between traditional media ownership and electoral outcomes.

Despite these limitations, our findings contribute importantly to understanding media ownership's complex effects on democratic processes. Rather than simple democratic decline, we document a pattern of political disruption and transformation following PE acquisition. This disruption manifests as reduced electoral competitiveness occurring simultaneously with increased political mobilization – a surprising contradiction requiring renewed theoretical attention.

Future research should address several priorities. First, expanding the sample to include more treated units, perhaps by developing alternative data sources for local elections, would improve statistical power and generalizability. Second, examining intermediate outcomes in the causal chain such as news content analysis, citizen political knowledge, and campaign spending would illuminate mechanisms underlying the effects we observe. Third, long-term analysis could determine whether the new political equilibrium following PE-hedge-fund acquisition remains stable or continues to evolve.

Most importantly, our results caution against simplistic narratives about media ownership and democratic health. While PE-hedge-fund acquisition of local newspapers does appear to disrupt traditional political dynamics, the consequences seem to include unexpected

political mobilization alongside reduced electoral competition. These findings suggest that communities may possess greater adaptive capacity than we intentionally acknowledge, even as they confirm concerns about media concentration's effects on electoral competitiveness. As private equity and hedge funds continue expanding control over local news outlets, understanding these complex dynamics remains crucial for both scholarly inquiry and policy intervention aimed at preserving democratic vitality in an evolving media landscape.

Chapter 4

Machine Learning Classification of News Desert Counties: A Socioeconomic Pattern Analysis

4.1

Introduction

Existing research on the fault lines plaguing local news has mapped current news deserts but there is a gap in understanding the underlying socioeconomic traits of non-news desert counties through data-driven approaches. This chapter aims to fill that gap by developing a machine learning model to identify the key socioeconomic patterns that characterize existing U.S. news deserts.

Leveraging machine learning algorithms and incorporating socioeconomic variables along with spatial neighboring county data, we seek to provide insights into which non-news desert counties share similar characteristics with existing news deserts, indicating potential vulnerability to local journalism decline. We identify a list of ten non-news desert counties that show similar socioeconomic characteristics to news deserts – two of which are already news deserts and another five have only one local newsroom still operational.

4.2

Literature Review

The concept of news deserts has sparked extensive discussion and research about the current crisis in the sustainability of local news outlets. While much research has focused on documenting the erosion of local newspapers, there is a growing recognition that more comprehensive, data-driven approaches are required to inform policy interventions and philanthropic efforts aimed at revitalizing local journalism (Abernathy, 2020). Traditional studies have outlined the broad scope of the issue, often highlighting the decline in the number of newspapers and reduced journalistic capacity across vast geographic regions (Nielsen, 2015; Abernathy, 2018; Mahone, 2023).

However, recent scholarship has pointed out the conceptual ambiguity surrounding news deserts, leading to varied methodological approaches. At its core lies the fundamental question: what does it mean for a community to lack adequate news coverage? Three dominant approaches have dominated this conceptual landscape within recent academic literature, and each of them inform different aspects of the underlying information scarcity: outlet-focused, content-focused, and media-ecology approaches (Gulyas et al., 2023; Choi & Malthouse, 2024).

The outlet-focused approach, particularly prevalent in American scholarship, equates news deserts with the physical absence of newspapers – a definition that treats legacy print media as the *sine qua non* of local journalism (Abernathy, 2020; Choi & Malthouse, 2024). Additionally, by focusing strictly on the idea of "local", the data excludes the country's largest

national papers such as The New York Times, Wall Street Journal and USA Today – along with "shoppers, advertising supplements, magazines and other specialty publications" (Abernathy, 2018). While critics challenge this newspaper-centric framing as increasingly anachronistic in the digital age, its defenders argue that traditional newspapers remain irreplaceable when it comes to original reporting and civic accountability (Mahone et al., 2019; Usher, 2023).

The content-focused perspective shifts attention from presence to performance, arguing that information abundance can often mask information inadequacy (i.e. more news does not necessarily mean better news that meets the critical information needs of a community). To that end, the content-focused approach asks not whether news outlets simply exist but whether they are fulfilling their democratic obligations. Under this lens, a community saturated with media outlets might still constitute a news desert if available coverage fails to address critical information needs or systematically marginalizes certain populations (Khanom et al., 2023; Vogler et al., 2023).

Last is the media-ecology approach, which combined qualitative and quantitative methods to conceptualize news deserts as media ecosystems encompassing multiple layers that can individually and collectively shape information accessibility (Ferrier et al. 2016; Saiz-Echezarreta et al., 2024). This "ecological" metaphor basically acknowledges that contemporary information environments function as complex, interdependent systems rather than one homogenous collections of outlets serving up news.

A significant reconceptualization of news deserts that extends beyond the traditional American academic framework has emerged from the European Union (EU) in recent times.

The Centre for Media Pluralism and Media Freedom, through its Local Media for Democracy (LM4D) project, proposes a more holistic interpretation suited to Europe's distinctive media landscape. Beyond conventional dimensions of demography, geography, reach, viability, and access, the EU framework incorporates crucial considerations of media independence from political interference and the sources of local media funding. This expanded definition recognizes news deserts as "a geographic or administrative area, or a social community, where it is difficult or impossible to access sufficient, reliable, diverse and independent local, regional and community media and information" – a conceptualization that acknowledges the complex interplay between market concentration, political capture, and social exclusion (European University Institute et al., 2024).

Importantly, this perspective identifies news deserts not only through the absence of news outlets but also where ownership concentration limits external plurality, where political interference compromises internal plurality, and where marginalized communities cannot access information relevant to their social group. Thus, the framework ultimately positions news deserts as areas where citizens' critical information needs remain unfulfilled, threatening their fundamental right to receive plural and quality information on local social and political questions.

To conduct studies, however, methodological considerations also significantly influence how news deserts are defined and identified. For instance, quantitative studies usually demand measurable indicators and as such tend to gravitate toward outlet-based definitions that can be mapped and counted while, conversely, qualitative investigations of news deserts explore lived experiences of information scarcity by embracing more fluid

conceptualizations that can better capture community perspectives (Magasic et al., 2023; Negreira-Rey et al., 2023; Wang, 2023).

Many of the quantitative studies tend to focus on high-level descriptive data, potentially missing the nuanced, context-specific interactions that are critical to understanding the factors driving the disappearance of local news (Claussen, 2020; Usher, 2023). Another major critique of existing research is its failure to account for dynamic social, economic, and geographic factors that lend helpful context to the different influences impacting the vibrancy of local news ecosystems, consequently limiting the ability of researchers to offer specific and actionable solutions (Usher, 2019).

The outlet-focused approach, which informs this study, concentrates on the presence or absence of local newspapers, treating their existence as a proxy for local journalism's strength (Choi & Malthouse, 2024). While this approach has been critiqued for not fully addressing the quality of journalism, it remains critical because legacy newspapers continue to serve as primary sources of local news coverage in many regions (Mahone et al., 2019; Abernathy, 2020). To address these gaps and incorporate socioeconomic and spatial factors into our analysis, we focus on key variables that offer a more nuanced understanding of what socioeconomic patterns characterize existing news desert counties.

First, we choose population density over total population as a key variable in analyzing the viability of local news outlets. Population density offers a more precise measure of how individuals are distributed within a geographic area, which directly impacts the operational efficiency and economic feasibility of local news organizations. High population density implies a larger number of potential news consumers concentrated in a smaller area,

which can reduce distribution costs and enhance the reach of local media. Prior research has noted that the diversity and availability of media outlets are closely linked to population density, as dense markets can help newspapers capitalize on economies of scale in both production and distribution, making them more resilient to economic pressures that could lead to the emergence of news deserts (McCombs, 1972; Napoli et al., 2018; Stonbely, 2023).

Demographic composition – both race and age – also influences news consumption patterns. Older adults are traditionally more engaged with print media and local news (Grieco, 2019). Research indicates that seniors are more likely to rely on traditional news sources, providing a steady readership for local newspapers (Abernathy, 2020). Therefore, counties with higher proportions of older residents may offer a more stable market for local journalism, reducing the risk of news deserts. Studies have shown that predominantly Black communities are more susceptible to becoming news deserts due to historical underinvestment and systemic inequalities in media representation (Abernathy, 2018). Similarly, Napoli et al. (2018) explored how Hispanic/Latino communities receive inadequate local news coverage from their local media ecosystems. This lack of representation across counties with greater racial-ethnic diversity can lead to a diminished market size for local newspapers, potentially exacerbating existing disparities and limiting the community's ability to address local issues effectively.

Educational attainment is another critical factor. Higher education levels are associated with greater civic engagement, news consumption, and support for local media. Communities with more educated populations tend to have stronger local news ecosystems, as educated individuals are more likely to be engaged in the democratic process and consequently value

and financially support journalism (Napoli et al., 2018; Thompson, 2021; Hayes & Lawless, 2021).

Economic factors such as median household income and county-level GDP are valuable proxies in determining the viability of local news outlets. Counties with higher median incomes have more resources to support local journalism through greater disposable income, subscriptions, and local advertising (Abernathy, 2018; Hamilton & Morgan, 2018). A county's economic output, measured by GDP, reflects its capacity to support local journalism financially. Waldman (2011) emphasizes that a strong local economy provides the necessary advertising revenue and consumer spending power to sustain media operations. Thus, counties with robust GDP per capita are better positioned to maintain local news organizations, while those with lower economic output may lack the financial infrastructure needed to prevent news deserts. Conversely, economically distressed areas may struggle to sustain newspapers due to limited financial support, making them more prone to becoming news deserts (Usher, 2021).

Political affiliation can also have a significant impact on local news dynamics. Shearer & Matsa (2018) explore how political leaning affects trust in media and news consumption habits. Empirical evidence points out that a significant portion of news deserts, or counties at risk of turning into news deserts, have traditionally voted conservative (Henson, 2023). During the COVID-19 pandemic, communities with strong conservative support exhibited skepticism toward mainstream media, potentially reducing support for local newspapers if they are perceived as biased (Zhao et al., 2020). This mistrust can lead to decreased readership

and financial challenges for local news outlets, contributing to the development of news deserts.

Broadband access is another important predictor of at-risk counties. Numerous factors have contributed to the systemic issues fostering the emergence of news deserts, including media consolidation, declining print advertising revenues, and digital advertising monopolies by larger technology firms. With the decline in advertising revenues for print newspapers, many news organizations now rely on digital platforms and online advertising for revenue (Jacob, 2021). Without access to high-speed internet, it can be challenging for these organizations to reach their audience and generate income. A significant portion of news consumption has already transitioned online, making broadband access indispensable for information access (Shearer et al., 2024). Yet, broadband access remains uneven across the United States, with about 19 million Americans left in the digital void with no broadband connectivity (FCC, 2022). Disparities in broadband distribution, especially noticeable in rural areas, are attributed to infrastructural gaps or affordability issues (Grubesic & Mack, 2017; Perrin, 2019). Affordability isn't just a rural concern; the cost barrier persists across geographies. Despite broadband availability, nearly 100 million Americans, deterred by pricing, opt not to subscribe. Specific demographics, including the elderly, racial and ethnic minorities, and those at the lower spectrum of education and income, often find themselves devoid of home broadband access (FCC, 2022).

Finally, while several studies have identified characteristics common to news deserts, these studies often remain at the level of case studies or correlations, without employing more sophisticated methods to predict where and why news deserts are likely to emerge. For

instance, Radcliffe and Ali (2017) observed that rural news organizations have struggled to adapt to the digital era, but the underlying socioeconomic mechanisms that exacerbate these vulnerabilities remain underexplored.

Drawing from spatial journalism theory, which posits that news and information dissemination are influenced by geographic space (Weiss, 2018), we hypothesize that a county's status as a news desert is not only determined by its own socioeconomic characteristics but also by those of its neighboring counties. This approach aligns with the theory of spatial dependence, suggesting that economic and social outcomes in one region are influenced by those in neighboring regions (Case et al., 1993; Voss et al., 2006; Anselin, 2019). Incorporating neighboring counties' data allows us to capture spillover effects and regional dynamics that traditional, non-spatial models might overlook.

By integrating spatial features and neighbor averages into our predictive models, we acknowledge the interconnectedness of local news ecosystems. A county's news ecosystem – comprising local newspapers, radio stations, digital news platforms, and other media outlets – can be potentially influenced not only by its internal characteristics but also by the dynamics of its neighboring counties. Research on media consumption patterns demonstrates that audiences often rely on news sources from neighboring counties, especially when local options are limited (Napoli et al., 2017). Abernathy (2018) discusses how the closure of local newspapers in one county can have a ripple effect on adjacent counties, leading to a broader regional deficiency in news coverage. Shared economic and social conditions can foster regional collaborations among media outlets, emphasizing the need for regional perspectives in media studies (Ferrier et al., 2016; Elejalde et al., 2019).

This methodology advances existing theories on news deserts by providing empirical evidence of spatial interactions in the viability of local news outlets. It suggests that interventions to support local journalism may need to consider regional strategies rather than focusing solely on individual counties.

Based on the theoretical framework and literature review, we propose the following hypotheses:

- **H1:** Advanced machine learning models, when combined with appropriate resampling techniques to address class imbalance, can effectively identify the socioeconomic characteristics that underlie news desert counties.
- **H2:** Incorporating interaction terms between key socioeconomic factors (e.g., population density and GDP per capita) significantly improves the performance of the models.
- **H3:** Including socioeconomic characteristics of neighboring counties enhances the models' ability to classify counties as news deserts or non-news deserts.

Lastly, this chapter builds on the existing body of literature by addressing key gaps in both methodological approaches and substantive insights. The use of supervised machine learning, coupled with socioeconomic interaction terms and spatial analysis, offers a novel way to identify the distinguishing characteristics of news desert counties and recognize non-news desert counties that share similar socioeconomic profiles. Thus, we aim to provide actionable insights for policymakers and stakeholders seeking to develop targeted interventions to preserve local media ecosystems.

4.3

Methodology

An important consideration in our methodology is the imbalanced nature of the overall dataset from where we create the training model - meaning our data has a far higher number of *non-news desert* counties, and thus more of their attributes, as compared to *news deserts*. Classification algorithms, however, focus on the well-represented, or majority class, traditionally (Sawangarreerak & Thanathamathee, 2020). To rectify the class imbalance problem, we use different resampling methods: ADASYN, oversampling using Synthetic Minority Over-sampling Technique (SMOTE), undersampling using Tomek links, and combine both (SMOTE + Tomek; SMOTEENN) methods. The different classification models employed are retrained on the resampled training data, which then enables them to find patterns and relationships in the test data with an adjusted focus due to the newly synthesized minority class instances. This helps in improving the models' ability to classify minority class instances correctly.

Importantly, while our model is being trained on existing news desert counties at a specific point in time, we use it as a proxy for risk assessment by identifying non-news-desert counties that share similar socioeconomic characteristics as the identified news deserts. This is predicated on the assumption that counties with similar socioeconomic profiles are at similar risk, though we acknowledge this doesn't capture the dynamic transition processes.

We begin by splitting our complete dataset of approximately 3,000 counties into a training set (80%) and a test set (20%) using stratified random sampling. This ensures both

sets maintain the original proportion of news desert counties. This test set remains untouched until final model evaluation, preventing any data leakage. Next, we apply K-fold stratified cross-validation (K=5) exclusively to the training set, wherein each fold maintains the original news desert to non-news-desert ratio.

For each cross-validation iteration, we use four folds for training and one for validation. Resampling occurs within each of the four cross-validation folds, but never validation or test data (Ghorbani & Ghousi, 2020; Adkins, 2023). For instance, when using SMOTE, we generate synthetic news desert examples by interpolating between existing news desert counties within only the cross-validation folds. Each classifier is then trained on the resampled data within each cross-validation fold, and then evaluated on the original, imbalanced validation fold. During cross-validation, we average the F2-score across all five folds, with the classifier-resampler combination achieving the highest mean F2-score selected as our best model.

After identifying our best model and resampling combination, we train it on the entire training set and evaluate it on the completely untouched held-out test set. This approach ensures that no data leakage occurs because while the test set is isolated from the beginning and all preprocessing parameters are learned solely from training data. The resampling enables our models to learn meaningful patterns socioeconomic characteristics that distinguish news deserts from non-news deserts, while evaluation on imbalanced data ensures our performance metrics reflect realistic scenarios.

Our news data is obtained from the 'State of Local News' report published in 2022 (Abernathy & Franklin, 2022). The second part of our method incorporates county-level

metadata, and we use Federal Information Processing Standard code (FIPS) to anchor counties without any local news outlets in our dataset. Once we specifically map all *news deserts* using FIPS codes, it enables us to expand our analysis to utilize several different open datasets with different information. Broadly, the data we look at are population, race, age, educational attainment, median household income, broadband access, voting, and GDP per capita. We obtain the information from different datasets, including the ACS 5-year Census data, MIT Election Data, USDA Economic Research Service, and the U.S. Bureau of Economic Analysis.

Missing values can bias machine learning models and degrade predictive performance (Little & Rubin, 2019). In this chapter, missing values in the socioeconomic variables were imputed using the median imputation strategy. The median is robust to outliers and provides a central tendency measure that is less affected by skewed data distributions (Gelman et al., 2013). Formally, for a variable X with missing entries, each missing value X_i is replaced by the median $\bar{X}$ of the observed values, so:

$$X_i = \bar{X} \text{ if } X_i \text{ is missing}$$

Next, a news desert label is based on there being no local newspapers in circulation at the county level. The target variable Y_i, news desert county, is defined as:

$$Y_i = \begin{cases} 1 \; if \; county \; is \; a \; news \; desert \\ 0 \; otherwise \end{cases}$$

To capture the complex interplay between socioeconomic factors, we also use two interaction terms:

Population Density x GDP per capita,

Income x Broadband.

These interaction terms help model non-linear relationships and interactions between variables, which are essential in capturing the multifaceted nature of news desert characteristics.

For a given county *i*, the population-weighted average of a socio-economic feature x from its neighboring counties N_i is:

$$x^{(i)}_{\text{neighbor_avg}} = \frac{\sum_{j \in N(i)} x^{(j)} \cdot P(j)}{\sum_{j \in N(i)} P(j)}$$

where:

- $x^{(j)}$ is the value of a given feature x in neighboring county j,
- $P^{(j)}$ is the total population of county j,
- N_i is the set of neighboring counties of county i.

This allows us to incorporate the influence of neighboring counties' socio-economic conditions on the local news environment of any given county i.

To classify counties as news deserts or non-news deserts, we employed a variety of supervised machine learning algorithms. The selection of algorithms was based on their suitability for binary classification tasks, ability to handle complex relationships and data structures, and interpretability of results (Hastie et al., 2009). Given the imbalanced nature of the dataset – with significantly fewer counties being news deserts compared to non-news

deserts – we also incorporated various resampling techniques to address the class imbalance. The section below outlines the algorithms used, along with the methods employed to mitigate data imbalance.

Logistic Regression was utilized as a baseline classifier due to its simplicity and interpretability (Hosmer Jr et al., 2013). The algorithm models the probability that a given input point belongs to a particular category, making it suitable for binary classification problems like identifying whether a county is a news desert. However, Logistic Regression can struggle with complex datasets, especially when there is class imbalance like in our dataset (King & Zeng, 2001).

Random Forest algorithm, an ensemble learning method constructed with multiple decision trees, was selected for its robustness, ability to handle high-dimensional data, and resistance to overfitting (Breiman, 2001). This method is particularly effective for modeling complex interactions among socio-economic variables, which are prevalent in our dataset. The Random Forest algorithm also provide measures of feature importance, allowing us to identify the most influential socio-economic factors that characterize news desert counties (Liaw & Wiener, 2002).

We incorporated Extreme Gradient Boosting, or XGBoost, due to its efficiency and superior performance in handling structured data. Its regularization techniques help in preventing overfitting, ensuring that the model generalizes well to unseen data (Chen & Guestrin, 2016). This algorithm is an implementation of gradient boosted decision trees designed for speed and performance and it is particularly adept at capturing non-linear relationships and interactions among features, which is essential in modeling the complex

socio-economic variables that distinguish news desert counties from non-news desert counties.

The Support Vector Machine (SVM) with a Radial Basis Function (RBF) kernel was employed to capture non-linear relationships between the features and the target variable. SVMs are effective in high-dimensional spaces and can handle cases where the number of dimensions exceeds the number of samples (Cortes & Vapnik, 1995). However, SVMs are also known to perform poorly with imbalanced datasets because they focus on maximizing the margin without considering the data distribution (Japkowicz & Stephen, 2002). To address this, we incorporated resampling techniques like SMOTE and Tomek Links to balance the class distribution before training the SVM model, enhancing its ability to identify high-risk counties.

The K-Nearest Neighbors (KNN) algorithm is a non-parametric method that classifies a data point based on how its neighbors are classified (Cover & Hart, 1967). It can be particularly useful in detecting local structures and anomalies in socio-economic conditions that may correlate with the formation of news deserts. However, KNN is sensitive to the local distribution of data, which makes it susceptible to the effects of class imbalance (Weiss, 2004).

We also included the Naive Bayes (NB) classifier due to its computational efficiency and simplicity. Naive Bayes is based on applying Bayes' theorem with strong independence assumptions between the features (Rish, 2001). NB assumes feature independence, which is rarely the case in socio-economic data, and so its performance provides insight into the

importance of modeling feature interactions. Similar to other algorithms, Naive Bayes can be affected by class imbalance (Japkowicz, 2000).

As discussed intermittently, class imbalance is a common issue in predictive modeling, especially in binary classification problems where one class significantly outnumbers the other. In our dataset, the number of counties that are classified as news deserts is far smaller (about ~ 7% of 3000 counties) than counties that are not news deserts, leading to a potential bias in model training. To mitigate this, we apply various resampling techniques:

1. Synthetic Minority Over-sampling Technique (SMOTE): SMOTE generates synthetic examples for the minority class by interpolating between existing minority instances (Chawla et al., 2002). Mathematically, for a minority class sample x_i and one of its nearest neighbors x_{zi}, a new synthetic sample x_{new} is created as:

   $$x_{new} = x_i + \delta\,(x_{zi} - x_i)$$

   where δ is a random number between 0 and 1.

2. Tomek Links: A Tomek link is a pair of instances from opposite classes with the minimum Euclidean distance from their k-nearest neighbors. Removing similar links helps clean overlapping classes, and one can remove either or both to reduce class overlap (Tomek, 1976). For instance, a sample pair (x_i, x_j) form a Tomek link if there is no sample x_k that satisfies the following conditions related to the Euclidean distance:

   $$d(x_i, x_k) < d(x_i, x_j) \text{ or } d(x_j, x_k) < d(x_i, x_j)$$

3. SMOTE-Tomek and SMOTEENN: These hybrid methods first over-sample the minority class using SMOTE and then apply under-sampling to remove noisy or ambiguous examples, enhancing the overall quality of the training data. SMOTE-Tomek combines SMOTE and Tomek Links by first over-sampling the minority class using SMOTE and then cleaning the data using Tomek Links. On the other hand, SMOTEENN integrates SMOTE with Edited Nearest Neighbors (ENN) to both balance the class distribution and clean the dataset.

4. Adaptive Synthetic Sampling (ADASYN): ADASYN builds upon SMOTE by generating synthetic samples adaptively, focusing more on difficult-to-learn instances that are near class boundaries (He et al., 2008). The algorithm computes a density distribution for minority class examples and creates more synthetic data in regions where the minority class is underrepresented, allowing the classifier to concentrate on complex decision boundaries, enhancing sensitivity to difficult-to-classify examples.

To evaluate model performance, we employ several metrics but only some of them are suitable for imbalanced classification. In the formulae below, TP is True Positives, or the true count of news desert counties correctly identified as news deserts, FP is False Positives or non-news desert counties incorrectly classified as news deserts, TN is True Negatives or non-news desert counties correctly classified, and FN is False Negatives or news desert counties incorrectly classified as non-news deserts:

- Accuracy: The proportion of correct predictions out of all predictions:

$$\text{Accuracy} = (TP+TN) /(FP+FN+TP+TN)$$

- Precision: The proportion of true positive predictions out of all positive predictions:

$$\text{Precision} = TP / (TP + FP)$$

- Recall (Sensitivity): The proportion of true positive predictions out of all actual positives:

$$\text{Recall} = TP / (TP + FN)$$

- F1-Score: The harmonic mean of Precision and Recall and it gives equal weight to both:

$$\text{F1-Score} = (2 * (\text{Precision} * \text{Recall})) / (\text{Precision} + \text{Recall})$$

- F2-Score: Used in imbalanced datasets where one class is more important, the F2 score gives Recall more importance, which is useful in cases where one wants to minimize false negatives (He & Garcia, 2009; Prasetiyo et al., 2021; Bhatt, 2024; Yan, 2024). In our context, missing cases of non-news desert counties with news desert traits (false negatives) is potentially costlier than including false positives, or non-news desert counties that might not be similar but which get swept up by the model.

$$F2 = (5 * (\text{Precision} * \text{Recall})) / ((4 * \text{Precision}) + \text{Recall})$$

- ROC - AUC: The receiver operating characteristic (ROC) curve presents the tradeoff between the false positive rate and the true positive rate of the model while the area under the curve (AUC) is often employed as a summary metric to interpret the model's performance (Weng & Poon, 2008; Çorbacıoğlu & Aksel, 2023). Robust to class imbalance, it is thus better suited in assessing the model performance for imbalanced data (Richardson et al., 2024). AUC values range from 0.5 to 1.0, with a value of 0.5 indicating that the model is no better than random guessing at identifying non-news desert counties with traits similar to news deserts. A value of 1.0 indicates perfect discrimination.

4.4

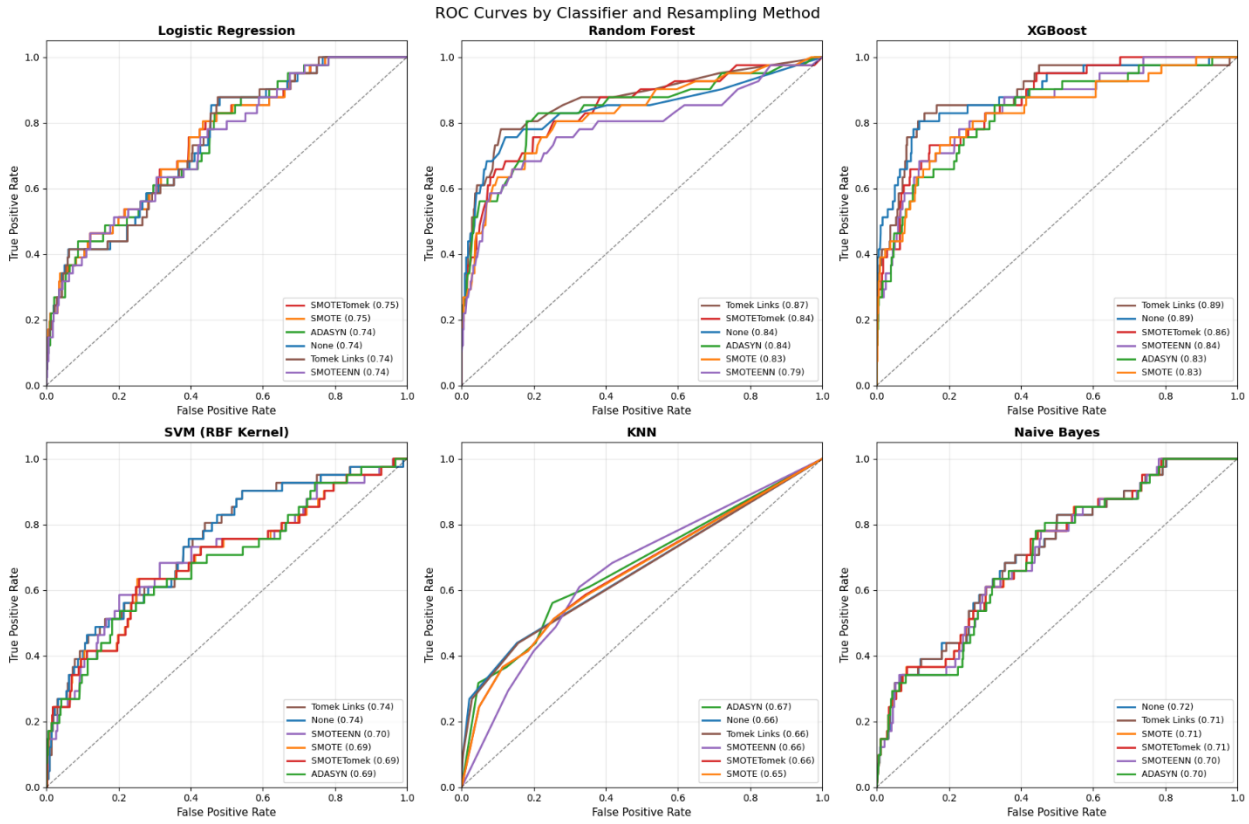
Results

We found that the Random Forest classifier with SMOTEENN resampling achieved the best balance with an F2-score of 0.51 and ROC-AUC score of 0.79, demonstrating reasonable success in identifying non-news desert counties with similar socioeconomic profiles as news deserts. In contrast, models like Logistic Regression performed less effectively despite resampling, due to their inability to capture non-linear relationships without extensive feature engineering. Receiver Operating Characteristic (ROC) curves are plotted to visualize the models' discriminative abilities (see figure 3).

Focusing on our initial hypothesis RQ1 and RQ2, our chapter demonstrates that advanced machine learning techniques can be a useful tool to apply to an imbalanced dataset and help identify non-news desert counties that share similar socioeconomic characteristics as news deserts. The utilization of ensemble methods capable of capturing complex, nonlinear relationships among different socioeconomic variables can help enhance classification accuracy and utilization of various resampling techniques helps model performance, allowing the model to learn the underlying patterns more effectively.

Figure 3.

ROC - AUC curves comparing all classifiers with resampling methods. Each subplot displays performance for a single classifier across six resampling techniques: None, SMOTE, ADASYN, SMOTETomek, SMOTEENN, Tomek Links. Diagonal dashed lines represent random classification baseline.



For RQ3, we explored the effect of interaction terms and including socioeconomic characteristics from neighboring counties in addition to within-county features. The feature importance analysis revealed that variables like population density – GDP per capita

interaction, presence of minority population, broadband – income interaction, political affiliation, median household income etc. were also important predictors.

An examination of the feature importances of the Random Forest - SMOTEENN model revealed that the 'Population Density – GDP per capita' interaction term was the second most significant predictor, accounting for approximately 10% of the model's decision-making process while the 'Broadband – Income' interaction term was the fifth most influential parameter (see Table 7).

This finding underscores the hypothesis that the combined effect of economic activity and population concentration critically influences the sustainability of local news outlets. Counties with low population density and per capita GDP may lack the necessary advertising revenue and subscriber base to support local newspapers. The other features included:

- Population Density: Lower population densities were linked to news desert counties, reflecting challenges in sustaining newspapers in sparsely populated areas
- Broadband access: Limited broadband access emerged as a significant factor, underscoring the importance of digital infrastructure in modern news dissemination
- Hispanic/Latino Population Percentage: Higher percentages correlate with increased risk, potentially due to historical underrepresentation and economic disparities in these communities;
- GOP voting: Republican-voting counties were associated with higher risk, further emphasizing the correlation between news deserts and voting preferences in sustaining local news outlets.

Using our best-performing Random Forest classifier model with SMOTEENN resampling, we identified the top 10 non-news desert counties sharing similar socioeconomic characteristics with existing news deserts (Table 8). Some of these counties' shared traits include low population density, economic distress, limited broadband access, and higher percentages of minority populations. As of 2024, Northwestern Local News Initiative data indicates that Edwards (TX) and Tyrell (NC) are already news deserts. Out of the top ten counties classified as like news desert counties, 5 other counties have only one newsroom operational. The exceptions are Sandoval (NM) and Henry (IA) with 3 news outlets, and San Juan (NM) with 2 news outlets (Local News Initiative, 2024).

By addressing these questions, this chapter contributes to a deeper understanding of the factors that characterize news desert counties and demonstrates the practical utility of machine learning models in informing policy interventions. The identification of non-news desert counties that share similar socioeconomic profiles with existing news deserts along with the relevant actionable insights can provide a platform for policymakers and stakeholders to implement targeted interventions to support local journalism in vulnerable areas, and, by extension, fortify the democratic process.

Table 7

Feature	Importance
Population Density (Per Sq. Mile)	.124
Population Density * GDP per capita	.097
Broadband Access	.076
Hispanic/Latino	.071
Broadband * Income Interaction	.06
Political Affiliation (GOP)	.05
Broadband Access (Neighboring County Average)	.048
Median Household Income	.047
Age 65+	.045
Bachelor's Degree	.043

Table 8

Non-news desert counties with socioeconomic profiles similar to existing news deserts

(Random Forest – SMOTEENN model)

FIPS	County	State	Model score
20023	Cheyenne	KS	0.94
5017	Chicot	AR	0.93
48137	Edwards	TX	0.86
37177	Tyrrell	NC	0.81
35047	Sandoval	NM	0.78
35039	San Juan	NM	0.78
19087	Henry	IA	0.77
35051	Socorro	NM	0.75
16077	Power	ID	0.73
40007	Beaver	OK	0.73

4.5

Discussion and Limitations

The findings of this chapter underscore the complexity and urgency of addressing the decline of local newspapers and the formation of news deserts across the United States. The prominence of the 'population density – GDP per capita' interaction or the 'income - broadband access' interaction as influential predictors highlight the intricate interplay between economic vitality and demographic concentration in distinguishing news desert counties from those with viable local news ecosystems. Counties with low population densities and lower per capita GDP are more akin to news deserts – a pattern that reinforces existing concerns about the precarious economic viability of community-oriented media outlets.

The influence of minority population percentages in characterizing news deserts further corroborates existing scholarship on historical underinvestment and systemic inequalities in media representation, emphasizing the need for more inclusive strategies to ensure equitable access to local news. Broadband access, which emerged as a consequential factor, reveals that a county's digital infrastructure significantly affects both the practical feasibility of disseminating local news and the audience's capacity to engage with digital journalism.

From a policy standpoint, these findings point to several concrete strategies that could prevent the expansion of news desert counties in the country. First, bolstering local journalism through targeted subsidies or grants can alleviate some of the financial constraints in economically distressed counties that share characteristics with existing news deserts. State or

federal programs that incentivize the establishment or retention of local news outlets – possibly through tax breaks, public – private partnerships, or philanthropic funds – could be tailored specifically to counties where low economic health and population density jointly create conditions similar to existing news deserts. Second, enhancing digital infrastructure is paramount. Policymakers should prioritize broadband expansion plans, particularly in rural or otherwise underserved regions, by coordinating federal and state investments in telecommunications, incentivizing local internet service providers, or establishing community broadband initiatives. By improving digital connectivity, these measures may facilitate the growth of online-only local news platforms and encourage broader community engagement in regions where print media models are failing.

Furthermore, the chapter's identification of minority communities as a characteristic feature of news desertification highlights the importance of promoting media diversity and representation. Local news outlets that do more to serve racial or ethnic minority audiences can play a pivotal role in maintaining community cohesion, preserving cultural identity, and fostering civic engagement. Policy interventions, such as diversity-focused media grants, newsroom fellowship programs, or legislative requirements for inclusive hiring practices, could address long-standing gaps in representation and help build broader, more sustainable readership bases.

While these policy measures could meaningfully lessen the threat of news deserts, it is equally important to acknowledge the chapter's inherent limitations. The reliance on county-level print newspaper data masks the heterogeneity within counties, where significant intracommunity differences may exist – particularly within larger metropolitan areas that

combine affluent urban centers with rural peripheries. In addition, although the chapter draws on cross-sectional data, news deserts are not static; longitudinal approaches that incorporate time-series data may reveal how shifting economic conditions, demographic changes, and technological innovations influence a county's risk status over time. Moreover, variables such as digital-only media outlets, emerging funding models for journalism, and community engagement indices were not incorporated due to data availability constraints, yet these factors undoubtedly shape the resilience or vulnerability of local news markets.

Crucially, our model identifies the socioeconomic characteristics of existing news deserts and can recognize non-news desert counties that share similar profiles, but it cannot predict which counties will transition to news desert status in the future. This cross-sectional analysis provides a snapshot of current patterns rather than a dynamic prediction of future change.

Future research can address these limitations by integrating more granular data sources and employing longitudinal methods capable of tracking how dynamic forces interact to create or ameliorate news deserts. Qualitative case studies of counties that share characteristics with news deserts but maintain local journalism could further illuminate the local factors – media ownership structures, philanthropic interventions, civic leadership engagement – that can either exacerbate or mitigate the decline of local journalism. Such mixed-methods approaches would not only refine classification models but also furnish a richer, contextually grounded foundation for crafting more effective interventions.

The results of this chapter affirm that understanding the characteristics of news deserts requires a multifaceted approach combining economic structures, infrastructural investments,

and inclusive, community-centered policy strategies. Recognizing and responding to the socioeconomic interdependencies revealed by similar classification models can help stakeholders more accurately identify areas sharing characteristics with existing news deserts and tailor interventions accordingly. In doing so, policymakers, media practitioners, and community organizations may better ensure that local journalism remains a vibrant and accessible pillar of democratic life.

Chapter 5

Conclusion

The assertion that journalism *still* plays an indispensable role in preserving democratic vitality today belies the stark existential crisis laid out so far. This dissertation's approach is more about arguing that this crisis is a cascade of interconnected failures rather than one isolated phenomenon. Our theoretical framework established journalism as a public good characterized by positive externalities that market mechanisms have systematically undervalued to our peril (Baker, 2001; Hamilton, 2004; Pickard, 2015). This economic reality creates conditions ripe for exploitation: private equity and hedge fund firms, driven by short-term profit motives, acquire struggling newspapers and implement aggressive cost-cutting that either severely guts or completely shuts down newsrooms, resulting in adverse consequences for democratic competition and accountability (Abernathy & Franklin, 2022; Ewens et al., 2022).

Yet our empirical findings reveal this relationship is more complex than linear decline. The paradoxical effects documented in our electoral competitiveness chapter, for instance, where private-equity-and-hedge-fund acquisition simultaneously decreased competition while spurring voter mobilization and challenger entry, suggests that communities respond to institutional disruption in unexpected ways. This pattern of democratic reorganization rather than simple erosion challenges conventional theories of media effects and points towards what might be a form of creative destruction in local political ecosystems.

The predictive classification and modeling of counties most vulnerable of turning into news deserts adds another crucial dimension to this dissertation's narrative. By identifying social, economic, demographic, and spatial factors that underlie the creation of news deserts, we assess how the crisis follows and exacerbates patterns of existing inequality. Counties with low population density, weaker economic foundations, limited broadband access, and higher minority populations face disproportionate risk, thus underscoring how journalism's market failure intersects with broader patterns of social and economic marginalization (Napoli et al., 2018; Abernathy, 2020). The significance of neighboring county characteristics in our predictive models further reveals that news desertification operates as a regional contagion rather than isolated local failures, suggesting that policy interventions must consider spatial interdependencies.

Collectively, our findings demonstrate that market mechanisms alone cannot preserve local journalism's democratic functions: the aggressive *greedy money* acquisitions of local newsrooms trigger a temporal process of newsroom degradation that unfolds over years. The spike-and-reversal pattern observed in our event study, with effects peaking at $t = 1$ before partial dissipation, indicates that this degradation follows a predictable temporal arc that policymakers could potentially interrupt through timely intervention. At the same time, this slow degradation of a community's informational reservoir can potentially spill over to neighboring counties, establishing conditions for regional information deserts. Arguably, this temporal-spatial interaction indicates that the local journalism crisis operates through accelerating feedback loops: *greedy money* ownership guts reporting capacity, diminished reporting weakens electoral competition, less competitive elections reduce civic engagement, and disengaged communities cannot sustain local journalism, leading to further acquisitions.

This sort of a vicious cycle is reinforced wherein economically vulnerable communities with dispersed populations cannot sustain market-based journalism, making them attractive targets for extraction-focused ownership models that further destroy their information infrastructure. As outlined in this chapter, the population density – per capita GDP interaction emerged as the second most significant predictor of news-desert risk, while we also demonstrated how aggressive profit-first ownership exploits precisely these economic vulnerabilities. This intersection of vulnerability and predatory practices creates a compounding effect: communities most in need of robust local journalism to ensure accountability and civic participation are least able to sustain it under the current market conditions.

However, the breakdown of consensus around mainstream news also complicates any well-intentioned prescription for local journalism's renewal. Partisan selective exposure has become a defining feature of modern news consumption with the high-choice media environment encouraging citizens to select news sources that confirm rather than challenge their existing beliefs (Levy, 2021; Peterson et al., 2021). This gradual fragmentation of the information ecosystem poses a paradox for those advocating for local journalism's democratic value: if citizens increasingly trust only news that affirms their worldviews, then even well-funded, professionally staffed local newsrooms may fail to serve their intended democratic functions.

More troubling still, our own findings hint at the complex relationship between polarization and civic engagement. The paradoxical results we documented – where *greedy money* acquisition dented electoral competition while spurring a degree of voter mobilization

– may reflect this broader phenomenon wherein polarization itself becomes a driver of political participation (Stroud, 2011; Mason, 2018). Trust in media also varies dramatically across ideological lines today as we've documented, suggesting that any attempt to revive local journalism must grapple with the reality that different segments of the community may have irreconcilable expectations about what constitutes legitimate news (Tsfati & Ariely 2014; Strömbäck et al., 2020). Thus, if citizens are most engaged when they perceive existential threats to their values or when consuming partisan content that somehow activates their political identities, then the traditional model of "objective" local journalism may be fundamentally at odds with the goal of civic participation (Iyengar et al., 2019; Finkel et al., 2020; Druckman et al., 2021).

The progression from a healthy-local-newspaper-county to a ghost-newspaper-county to a news-desert-county represents stages in an underlying process of decay driven by the political-economic forces outlined in our theoretical framework. The public good characteristics identified in our theoretical framework, combined with the empirical analysis, make it clear that treating journalism as a purely commercial enterprise guarantees its democratic failure. This recognition demands a fundamental reconceptualization of how society structures and supports its information infrastructure.

Thus, this presents a profound dilemma for policymakers and reformers: should policy interventions prioritize the restoration of traditional, professionally "objective" local journalism that may struggle to engage increasingly polarized audiences or does it make more sense to adapt local journalism to the fragmented media landscape today where engagement comes through partisan activation rather than shared civic discourse? The answer may be

somewhere down the middle. We might need to collectively reimagine local journalism not as a singular public good but as a diverse ecosystem of information sources serving different democratic functions for different audiences – a far more complex challenge than simply preventing newspaper closures or constraining predatory ownership models.

To that end, ethical guidelines and codes of conduct for journalists, established by organizations like the Society of Professional Journalists and the International Federation of Journalists, can serve as a foundation for evaluating journalistic practices and ensuring they are generally compliant with what constitutes *public good* principles (Ward, 2011; Curran, 2019). However, discussions about journalistic ethics often conflate concepts of morality and ethics. Arguably, the former is the 'generality of principles and to the possibility of their justification' whereas ethics is the application of those principles in particular social or historical or professional contexts (Silverstone, 2007). In the real world, even factoring in significant resources, operationalizing this ideal iteration of a theoretical *journalistic public good* would still involve a lot of challenges.

The empirical evidence presented throughout this dissertation warrants the discussion of critical policy interventions, grounded in the findings and their collective implications. Current antitrust frameworks are primarily focused on economic concentration and may be insufficient to address the unique challenges posed by aggressively financialized media ownership. To that end, policymakers should consider incorporating assessments of how ownership might result in market concentration as well as the impact on media pluralism (Fruits, 2025). This involves scrutinizing mergers and acquisitions not only for their market

share implications but also for their potential to reduce the diversity of voices and the provision of essential local news for local communities.

Given our finding that *greedy money* ownership of local newsrooms effects peak one-year post-acquisition, regulatory bodies could implement mandatory "cooling-off" periods during the first 18 months following media acquisitions, requiring new owners to maintain minimum newsroom staffing levels and local coverage quotas. This intervention window, suggested by our event study results, could prevent the most damaging immediate cuts while allowing communities time to organize alternative support structures.

Importantly, I would also argue that it is time to invoke much closer regulatory scrutiny when leveraged buyouts are employed to finance community newspaper acquisitions. This practice of leveraged buyouts saddles the acquired entities with substantial debt and incentivizes aggressive, short-term cost-cutting measures detrimental to public-service journalism (Abernathy & Franklin, 2022; Paladhi, 2023). Proactively promoting and incentivizing a diverse array of ownership models that are more intrinsically aligned with public service goals of journalism ought to be encouraged. This includes fostering non-profit news organizations, media cooperatives, community-owned outlets, and public benefit corporations. Policy mechanisms could include tax incentives for the donation of newspapers to qualified non-profit entities or for their conversion to non-profit status, as well as grants and low-interest loans to support the establishment and sustainability of such alternative structures.

Our analysis reveals that underlying socioeconomic conditions of news desert transcends county boundaries, suggesting the need for regional approaches to media

sustainability. States could establish Regional Media Sustainability Councils (RMSCs) that coordinate resources across county lines, pooling advertising revenues, sharing content creation costs, and developing joint digital infrastructure. Such regional cooperation could counteract the spatial contagion effects we have documented while achieving economies of scale that rural or underserved counties cannot achieve alone.

In the United States, there have already been several small steps towards having a nascent framework for public service media like New Jersey's Civic Information Consortium, which distributes funds to local news publishers (Ingram 2020). Another proposal includes the Local Journalism Initiative, where counties receive federal funds for nonprofit journalism (McChesney et al., 2021). According to the proposal, every three years, individuals over the legal voting age would receive three votes to decide how the county's funds should be allocated among three different LJI candidates within their county, with additional safeguards regarding the distribution and allocation of funds under this initiative.

Similar to New Jersey's newsroom experiment, California had its own emergent model of state-level intervention to support struggling local newsrooms albeit with a single technology behemoth: Google. The California Civic Media Fund (formerly Newsroom Transformation Fund), an agreement brokered between California and Google, had initially agreed to provide nearly $250 million to the state's local newsrooms over five years, starting in 2025 (Weise & Hubler, 2024). The underlying principle was in acknowledgement of the extractive relationship between technology aggregation platforms and news producers. However, the deal's structure – replacing mandatory payment mechanisms with discretionary funding tied to state budget allocations – effectively allows both Google and the state to

retreat from their commitments when faced with competing priorities, as evidenced by the reduction from $30 million to $10 million in state funding amid California's budget deficit (Campa, 2025). The agreement also included an inclusion of $62.5 million for an AI accelerator program, ostensibly unrelated to journalism's core democratic functions. Most importantly, the vast disparity between the negotiated settlement and the estimated $1.4 billion annually that platforms extract from California publishers underscores how market-based negotiations inherently favor concentrated corporate power over public goods, illuminating the fundamental weakness of voluntary corporate contributions as a sustainable solution to journalism's market failure (Allyn, 2024).

Considering initiatives taken by several European countries, a digital tax can also be introduced on big tech advertising monopolies with the funds directed towards a common pool that benefits public-service-journalism-as-public-good initiatives. About half of all European country members of the Organization for Economic Co-operation and Development (OECD) have either already announced, proposed, or implemented a digital services tax – a tax on selected gross revenue streams of large digital companies (Asen, 2021). Austria, France, Hungary, Italy, Poland, Spain, Turkey, and the United Kingdom have implemented a DST, while Belgium, the Czech Republic, and Slovakia have published proposals to enact such a tax, and Latvia, Norway, and Slovenia have similar plans in development (Asen, 2021). The European Union also has intentions to levy its own digital tax (EU Public Consultation, 2021). Ironically, it is the United States which has called these taxes discriminatory and threatened retaliation given most big tech companies are American (Martin, 2025). Within the United States, however, multiple states within are themselves exploring digital tax options,

with Maryland having recently enacted a digital advertising tax that is being contested in court (Stempel, 2025).

While each of the proposals laid above have their own merit, there cannot be a one-shoe-fits-all policy when it comes to funding public service media. Different nations' media systems work differently and attempting to shoehorn one idea uniformly across places might do more damage than good. The first place to start is by assessing what works and what does not work across different media systems. Interrogating the complex dynamic of media, economics, politics, and policy should be part of future research plans in order to causally establish the positive externalities of journalism irrefutably.

Future research priorities that can emerge from this dissertation include:

a) longitudinal tracking of the communities identified as high-risk in our predictive model to validate forecasts and refine intervention strategies;
b) experimental studies testing whether early warning systems based on specific predictive indicators like ours can mobilize preventive community action;
c) comparative analysis of how different ownership transition models (for e.g. – *greedy money* versus nonprofit versus community ownership) affect long-term democratic outcomes; and
d) investigation of the mechanisms underlying the paradoxical voter mobilization effects we documented, potentially through mixed-methods approaches combining quantitative analysis with ethnographic studies of affected communities

The stakes of continued inaction are profound. The unfolding crisis of local journalism is not merely a media industry problem but a democratic challenge that demands comprehensive response. Our findings demonstrate that this crisis manifests through predictable patterns – arcs of degradation following *greedy money* ownership changes, spatial contagion across neighboring counties, and community responses that suggest latent civic resilience and some sort of redemption arc. Understanding these patterns provides both warning and opportunity: warning of accelerating democratic erosion without intervention, and an opportunity to design targeted, timely, and regionally coordinated responses that preserve journalism's essential democratic functions. The question is not whether we can afford to support local journalism, but whether democracy can survive without it. The evidence presented in this dissertation suggests it cannot, and that recognition must galvanize the urgent action necessary to preserve journalism's essential democratic functions for future generations.

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ARIJIT PALADHI

Email: apaladhi@iu.edu

Education

Ph.D., Media Arts and Sciences October 2025

Indiana University Bloomington, USA

Honors:

Kern Fellowship November 2020

Harold C. Feightner Fellowship January 2022

Consortium of Media Policy Studies (COMPASS) Fellowship – June 2022

Indiana University Venture Fellowship December 2023

Master's in Public Policy June 2019

The University of Texas at Austin, USA

Honors:

Lyndon B. Johnson School of Public Affairs Fellowship June 2017

Wiliam H. Crook Fellowship for Global Development May 2018

Japan Student Services Organization (JASSO) Research Fellowship July 2018

James W. McGrew Award of the Central Texas Chapter of ASPA June 2021

Post-Graduate Diploma in Journalism May 2014

Indian Institute of Mass Communication – India

Bachelor of Engineering in Biotechnology May 2012

Visvesvaraya Technological University – India

Research

Research Paper(s)

Predicting News Deserts Using Supervised Machine Learning March 2025

Gannett and the news: Death by a thousand paper cuts November 2023

Understanding and Predicting Public Opinion on Investigative Journalism April 2025

Academic Appointments

The Media School, Indiana University Bloomington

Adjunct Instructor May 2025 - June 2025

Associate Instructor August 2023 – December 2023

Associate Instructor August 2021 – December 2021

Associate Instructor January 2021 – May 2021

Associate Instructor August 2020 – December 2020

The University of Texas at Austin, USA

Teaching Assistant August 2018 – January 2019

Work Experience

The Polis Center - *Indianapolis, USA* *June 2025 - Present*

Senior Research Analyst

Free Press - *Washington D.C, USA* *June 2022 – July 2022*

COMPASS Fellow

- Wrote analysis briefs on domestic as well as global journalism media policy
- Comparative analysis of global public funding models of journalism.

City of Austin – *Austin, Texas, USA*

Business Process Consultant *August 2019 – July 2020*

- Project Lead: Strategic Direction 2023
    - Tracked performance measures across all the PWD department subdivisions
    - Created a public-facing dashboard to track data for PWD performance measures
- Project Lead: Performance Measurement Assessment Project
    - Mapped, aligned, and retired performance measures of different PWD departments
- Data Analytics & Visualization lead: PWStat
    - Handled monthly data visualization & reporting for PWD divisions' internal performance measures

Hindustan Times, Mint – *New Delhi, India*

Senior Staff Writer *August 2016 - February 2017*

- Headed coverage of the developments in Indian health sector and the pharmaceutical industry

Cogencis Newswire – *Mumbai/New Delhi, India*

Senior Correspondent *December 2015 - August 2016*

- Spearheaded coverage of the infrastructure sector of the Indian economy.

Business Standard Newspaper – *New Delhi, India*

Correspondent *June 2014 – July 2015*

- Led coverage of the government policies in the infrastructure sector.
- Reported on the domestic and international tourism industry.

Skills

Computer/Research: Microsoft Office Suite, R, Python, STATA, SQL, Tableau, Power BI

Foreign Languages: English (Bilingual Proficiency), Hindi (Native Proficiency), and Bengali (Native Proficiency)