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# Geographic Consistency in Journalism: Exploring Temporal Metrics for Sustained Community Representation

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## ABSTRACT

For newsrooms to build trust with a local community, their coverage must be consistent, but to what extent is not always clear. A lack of shared understanding and policy on the appropriate consistency of publishing news for specific communities creates the risk of making editorial decisions that inadvertently misalign with coverage needs or expectations. This study analyzes 30 months of news articles from three San Francisco Bay Area newsrooms using a model for defining and measuring consistency. The model identified spatial and temporal fluctuations in local coverage over time, signaling periods of change in geographic representation. Overall, this study demonstrates how improved clarification of consistency can be a resource for editorial guidance and accountability for stabilizing the trust of the communities served.

## ARTICLE HISTORY

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community representation;  
local news; geography;  
spatial data; temporality

## Introduction

In the late nineteenth century, newspapers in the United States took an opportunity to provide more engaging and profitable news stories by shifting their perception of readers from partisans to consumers (Schudson 1998). Once “organs for political parties,” newspapers became more independent with this renewed focus that pushed journalists to recenter their work more around the public’s collective partisan and non-partisan needs. The new editorial approach led to “increasingly literary creations designed with readers in mind” that have continued to evolve through the twenty-first century alongside social needs and preferences. As this adaptability has been engineered into business and editorial activities of journalism to facilitate change and support readership, there are areas of its practice in which newsrooms have strategically sought to change less. From streamlining technology to standardizing language and values (“The Guardian’s climate pledge 2019”; Roberts 1977; “Uppercasing ‘Black,’” 2020), newsrooms have employed a variety of techniques that lead to more predictable decision-making and representative outcomes and build trust with the public over time. This study similarly focuses on standardizing editorial change from a perspective of spatial and temporal decisions in local news coverage called geographic consistency. The study applied a model to 30 months of news coverage from three San Francisco Bay Area newsrooms

to measure geographic consistency and contextualize fluctuations with thresholds that may have impacted community representation and trust.

### **Literature Review**

At the start of the twenty-first century, the adoption of the internet accelerated the democratization of technology, providing the public with new choices for consuming information and less demand for the traditional print products of the news industry (Downie and Schudson 2009; Waldman 2011). Between 2004 and 2019, one in four print newspapers went out of business (Abernathy 2020), and newsroom employment dropped by 26% through 2020 (Walker 2021). Within this period, newsrooms cut back their distribution to reduce costs (Abernathy et al. 2022, 32) and shrunk the space available for news content by 43%, creating smaller “news holes” as advertising and non-editorial content were increasingly welcomed to reach revenue goals (Hayes and Lawless 2021). New digital counterparts arose but without the same degree of employment (Downie and Schudson). The reduction in news availability has implications in local communities, including less voter turnout (Schulhofer-Wohl and Garrido 2009; Gentzkow, Shapiro, and Sinkinson 2011), economic activity (Kang and Nam 2021), and confidence in the journalism profession (Wenzel et al. 2018). Residents must rely on local information from other sources that are “less produced and edited” (Wenzel), which has often been social media and word-of-mouth (Usher 2023). To continue providing information to communities, impacted newsrooms have adopted strategies that require few resources, such as content syndication (Toff and Nielsen 2018; Ewens, Gupta, and Howell 2022) and parachute journalism (Fondren, Hamilton, and McCune 2019). Overall, this industry shift has produced environments of “relatively thin coverage,” demoting newsrooms to “a limited watchdog role” (Lindgren 2009) and, at the extreme, perceiving them as “ghost newspapers” (Sullivan 2020).

In the case of parachute journalism, newsrooms are known for “dispatching journalists to a news story far from their home base” without “fundamental understanding of the [local] culture and history” and extracting them as soon as the story is over (Fondren, Hamilton, and McCune 2019). The decision to appoint a journalist to a foreign community is not new (Coddington 1965) but has become more popular and automated over time (Le Quéré and Jakesch 2022). Parachute journalism is reasonable considering a scenario with few or no journalists available within the given community and the benefits of designating a journalist to multiple places to increase coverage at a lower cost than hiring more (Fondren). However, adverse effects of parachute journalism may occur, such as an absence of local context causing “skewed portrayals of a community” (Le Quéré), misrepresentation due to “lacking holistic coverage” (Wenzel et al. 2018), factual or perceptual errors (Fondren), and an emphasis on negative and crime-focused articles (Lindgren 2009).

In contrast, journalists who are “routinely” dedicated to a community produce better quality news because they “are more accountable to the people about whom they report” (Fondren, Hamilton, and McCune 2019). Similarly, the geographic proximity of journalists is an indicator of trust (Lynch and Rice 2022) and representation (Jefferson and Schmitz Weiss 2021) because they have a closer and more ethical relationship (Frost 2006) and shared mission, expectations, and values with residents (Coleman

2012). Reuters Institute's Trust in News Project further describes consistent news coverage as "an organization's track record involv[ing] past encounters and evaluations about the nature of its coverage over time," which a surveyee expressed is a "sense of consistency over time that gives a level of credibility" (Toff et al. 2021). A continuation of the project in 2023 found parachute journalism to remain an evident concern for readers who said "journalists needed to 'be there for days, find out what it really is actually like' in order to get beyond 'a couple of soundbites'" (Ross Arguedas et al. 2023).

This criterion of reader trust is related to the "frequency" of consuming information from the same news sources (Atwood et al. 2012; Wenzel et al. 2018) and mediums (Hofeditz et al. 2021). As a persistent and determinable temporal pattern in local news coverage, "frequency is a significant predictor of the number of readers who post comments" (Weber 2013). Research explains how this "continuity" of the news publication helps preceding coverage establish familiarity and relevance for local community members (Diakopoulos and Naaman 2011). Readers have some knowledge about the topic from prior news and have had time to reflect (Ananny 2016) and develop an opinion (Weber; Gentzkow, Shapiro, and Sinkinson 2011). To sustain news organizations, journalists must establish and maintain trust and positive relationships with readers in the community (Hermans, Schaap, and Bardoeel 2014; "How Funding Local News Ecosystems Helps American Communities Thrive," 2023). Aside from the consistency of coverage, trust depends on readers recognizing their community's representation (Coleman, Morrison, and Anthony 2011), needs are met (The Pivot Fund 2023), opinions and voices are heard (Lynch and Rice 2022), and diversity of stories are told (Wenzel). Over time, without trust, systemic barriers arise that make it more difficult for journalists to understand residents' needs and preferences for news information (Tsfati 2003).

### *Journalism's Relationship with Time*

Journalism has strategically adapted its relationship with time for news production and readership to sustain business, trust, and engagement. Beginning in the late 1990s, competition driven by the digital economy changed temporal structures in newsrooms into a "24-hour news cycle" that "pressures journalists to get the news first and fast" (Logan 2000). Similarly, the treatment of "periodicity [as] a marketing strategy" developed business-critical perceptions that "if it were not daily, a news industry could never develop" (Sommerville 1996) and "to find a way to package it all the first day or we're out of business" (McCartney and Herbers 1999). In the years following, editorial teams enforced a "need for speed" (Juntunen 2010) and criteria for "timeliness" (Schultz 2007) that shrunk time for decisions and publication "to a matter of minutes" (Saisho 2015). Consequently, less editorial time caused inaccuracies (Kovach and Rosenstiel 1999), less in-depth reporting (Fenton 2010), distress among journalists (Feinstein, Audet, and Waknine 2014; Saisho), and fatigue among readers (Seely 2019; Gottfried 2020; Wenzel et al. 2018).

Nonetheless, the more immediate expectations and deadlines have attempted to be justified and legitimized by referring to the values of the journalism profession and the "public's right to know" (Juntunen 2010). On the contrary, efforts exist to delegitimize the fast-paced approach by seeking to learn how culture in newsrooms shapes editorial decision-making (Lynch and Rice 2022). Researchers have perceived publishing inaccurate news as a negligent and malpractice model that crossed the threshold to become

“irresponsible customary practices” (Logan 2000). In support of a less aggressive approach, an alternative slower-paced approach popularized called Slow Journalism, which “takes its time to find things out, notices stories that others miss, and communicates it all to the highest standards” (Greenberg 2007).

Early definitions of newsworthiness have been considerate of both fast and slow approaches, suggesting a relative “time-span needed for the event to unfold and acquire meaning” while “continuing and repetitive at regular and short intervals” (Galtung and Ruge 1965). An example of intervals in journalism is the follow-up article, which is a path-dependent practice of “circl[ing] back to provide details about how specific problems or issues uncovered in earlier reporting were being addressed” (Napoli 2015) with an understanding that “by doing so, we will gain the trust of the audience” (Saisho 2015). Historical perceptions view follow-up news articles as the creation of “news strings” that are artificial continuities because the channel is open and there is “inertia in the system” (Galtung). This formation of an organized media pathway has been perceived as “melodic” and “could presumably be more inclusive, and yet less demanding” (Lynch 1960).

This diversity of temporal structuring in journalism often follows the response or preferences of readership (Juntunen 2010; Orlikowski and Yates 2002) yet is ultimately controlled by the news organization and may be intentionally arranged to “capture additional revenue” (Atwood et al. 2012), ensure content is impactful (Masurier 2014), or abide by legal doctrines (Ananny 2016). Research has found the motivations for pursuing any temporal structure in a newsroom to emerge both from a top-down approach called “inside-out time” that is defined by the needs of the organization, and from a bottom-up approach called “outside-in time” that is defined by the communities served (Ananny). This grouping correlates with the theory that the news industry and the communities it serves engage in multiple individualized (Putnam 2000, 216) and shared temporal structures (Ananny). The realization of this relationship has been liberating for news organizations as it “presents the possibility for alternative experiences of time, place and self” (Howard 2012) and inspires representational “assemblages” that question “what kind of news time does a public need?” (Ananny).

A renewed and intentional focus on temporal structures in local journalism that complements its audience’s environment and maintains a positive relationship with them is a step toward sustainability (Hermans, Schaap, and Bardoel 2014; Nelson 2021). This call for “an era of civic inventiveness to create a renewed set of institutions and channels” has been emphasized before (Putnam 2000, 401). Recently, specific initiatives have begun to shift focus to intentionally fund and assist operational practices in newsrooms (Heyamoto 2023) and support new models that close inequities in their practice (Abernathy 2023). However, newsrooms, philanthropists, policymakers, and local communities still need guidance to do this strategically with limited resources (Abernathy).

### *Studying Spatial and Temporal Practice*

Communication and media research have grown interested in comprehending news effects over time (Stanyer and Mihelj 2016). Time-series studies analyzing news coverage across multiple years have been able to leverage patterns of outlets and representation (“Knight Communities,” 2023), the influence of past coverage (Turkel et al. 2021), public

opinion (Wu et al. 2002), politics (Hayes and Lawless 2018; Ewens, Gupta, and Howell 2022), article volume (Horne et al. 2022; Turkel), employment (Ewens), shifts in journalistic roles (Mellado and Van Dalen 2019), and newspaper operations (Gentzkow, Shapiro, and Sinkinson 2011). In these studies, the breadth of the analysis provided “a better basis to study trends than a comparison of a limited number of time points” (Mellado). Other studies have applied an alternative temporal methodology, such as randomizing dates for analysis (Fischer, Jaidka, and Lelkes 2020; Napoli et al. 2018) or limiting the analysis to short periods, such as two weeks (Lindgren 2009). Studies have argued to reconsider traditional short-term analysis (Carlson and Lewis 2018; Weber 2013; Horne) and suggest “to engage more completely with the challenges of researching change over time” (Stanyer, 266).

Studies that have analyzed spatial or temporal changes, including the reduction of local journalism, are found to be “narrowly characterized by problematic binaries” (Usher 2023), referring to simply whether or not a newsroom resides in a particular region without critically assessing their coverage. For example, local information needs assessments often do not measure in a time-series (Hazeldine et al. 2023; “Knight Commission,” 2009; Friedland et al. 2012) and tend to generalize spatial gaps using general newsroom office locations or coverage area assumptions instead of article locations (Napoli et al. 2016; Atwood et al. 2012; Schulhofer-Wohl and Garrido 2009; Gentzkow, Shapiro, and Sinkinson 2011; Horne et al. 2022; “Knight Communities, Healthy News & Information Ecosystems 2023,” 2023).

Similarly, narrowness occurs within the spatial methodology of local news studies that assess a single spatial scale. Often, studies are limited to the county (Stonbely, Konieczna, and Holcomb 2018; Fischer, Jaidka, and Lelkes 2020; Horne et al. 2022), city (Gentzkow, Shapiro, and Sinkinson 2011), or congressional district (Hayes and Lawless 2018). These differ from studies that are inclusive of multiple scales, including between local and non-local (Ewens, Gupta, and Howell 2022), local and national (Fischer), or metro area sizes (Terkel et al. 2021). Being inclusive to multiple scales is argued to be too labor-intensive for local news studies (Napoli et al. 2018; Stonbely 2021), yet it is known to beneficially “bridge” context (Bissonette 1997) and recognize differences across scales (Lynch and Rice 2022).

The need for standardized models or frameworks compatible across these diverse research methods has been recognized for assessing journalism sustainability (Dejarnette 2021) and community information needs (Friedland et al. 2012; Napoli et al. 2016, 2018). Researchers have advocated for these frameworks to be inclusive and adaptive to temporal practices (Orlikowski and Yates 2002; Ananny 2016), spatial scales (Ferguson 1975), and “safe and just” thresholds (Rockström et al. 2021). Generally, frameworks have enabled organizations to implement standards and boundaries that minimize harm to people and unsustainable practices (Steffen et al. 2015; Raworth 2017). These standards act as thresholds “defining the ‘normal’ range of conditions” and acknowledge how to address when the range is crossed (White and Harrod 1997). Surpassing certain thresholds can be a tipping point, potentially leading to systemic events in social change (Centola et al. 2018) and press freedom (Halgand 2017).

For this study, the researchers approached the analysis of geographic consistency with awareness of these lessons and challenges in local journalism. The benefits of being inclusive and adaptable to temporal and spatial dimensions informed the analysis

model, allowing the study to be compatible with diverse date ranges, geographic scales, and thresholds. At the same time, the analysis incorporated the challenge of quantifying consistency in news coverage in a simple and standardized way that could easily communicate gaps and opportunities for better local representation.

The study utilized data from news published from three for-profit newsrooms in California's San Francisco Bay Area. The publisher for these newsrooms is Bay Area News Group (BANG), which is a subsidiary of the nationwide publisher MediaNews Group that publishes 68 daily and more than 300 weekly publications throughout the United States ("MediaNews Group," 2024) and owned by the hedge fund Alden Global Capital. In 2020, the Bay Area was the fifth-largest combined statistical area in the United States, with a population of 9.71 million ("2020 Population and Housing State Data," 2020). During the timeframe of this study, their digital services, including desktop, tablet, and mobile, reached an average of 36.3 million page views and 15.3 million monthly users ("Owned and Operated Media Solutions") and were supported by advertising and subscription revenue models ("BANG Market Book 2022").

### **Research Questions and Hypotheses**

The Research Questions (RQs) for this study included:

1. What components and steps are necessary to measure the geographic consistency of local news?
2. What labels, metrics, or other parts are necessary to communicate coverage consistency in a specific region?
3. What method or perspective of analysis provides the most actionable conclusions to address inconsistencies in local news?

The Hypotheses (H) for this study included:

1. Since the newsrooms had no methods implemented for explicitly measuring consistency, regions determined to have inconsistent news coverage will be greater than regions with consistent coverage.
2. Regions within the primary coverage areas marketed by the newsrooms will have more consistent news coverage.
3. Newsrooms that cover large regions will be more consistent across larger spatial scales, such as counties, than smaller scales, such as neighborhoods.

## **Methodology**

### **Data Collection**

This study utilized data from digital news articles published between February 2020 and July 2022 from three for-profit newsrooms in California's San Francisco Bay Area, including The Mercury News, East Bay Times, and Marin Independent Journal. The newsrooms were selected based on their editorial staff's participation in geotagging news articles within the study's 30-month timeframe and past involvement in research studies on local

news representation (Jefferson and Schmitz Weiss 2021). A convenience sampling method was applied for news articles published within the timeframe and geotagged within California, which resulted in 11,779 articles. Although the newsrooms republished articles from one another, this study only included original articles that had a unique canonical URL.

Editorial staff from each newsroom geotagged the articles in the WordPress Content Management System (CMS) using the Bloom for Publishers software plugin. The plugin displayed an optional geotagging form for each news article that allowed staff to conduct reverse geocoding by typing a human-readable location descriptor and receiving options for structured geographic data representing specific locations. The locations chosen for geotagging articles were up to the staff's discretion and limited to one primary location and up to a maximum of 29 secondary locations. A total of 14,202 locations were chosen, with 54% (7,786) being unique.

The collected locations from geotagged content included 590 neighborhoods, 449 postal codes, 284 cities, and 46 counties. The researchers applied a convenience sampling method only to include regions in the analysis with at least one article published per week for at least 13 weeks (10%) within the timeframe. The resulting subset of regions for the analysis included 88 neighborhoods, 173 postal codes, 84 cities, and 15 counties. In comparison, the state of California has 58 counties ("CA Census 2020," 2020), 482 cities or municipalities ("Learn About Cities," 2021), 1,721 postal codes ("California State Geoportal," 2024), and 3,115 neighborhoods ("Neighborhood Search," 2024). For clarification, this study labeled a region as a city if Google Maps Platform provided a value for any and the first of these address component types ("Geocoding Service," 2024): sublocality, sublocality\_level\_1-5, administrative\_area\_level\_3.

### **Limitations**

Geocoding was conducted within the CMS plugin using the Geocoding API provided by the Google Maps Platform. The location options offered to staff and geographic data within those locations were limited to data available at the time on the Google Maps Platform. Each location contained a structured geographic address or region that may have varied in specificity using components limited to a street address or intersection, neighborhood, postal code, city, and county. If the geographic definition for the location of a news article did not include any of these components, such as a statewide or nationwide story, the plugin excluded it as an option for geotagging. Depending on the definition, all location components may not have been applicable and available for analysis. For example, Ed R. Levin County Park was defined with a street address, postal code, city, and county but with no defined neighborhood, and therefore, the analysis did not tally this article as part of a neighborhood. Staff might have chosen not to geotag an article if there was no available location data, no prominent location in the article, or the article was determined not applicable or appropriate for geotagging.

Due to limited time and funding, this study was not a comprehensive analysis of all articles published by newsrooms or others operating in the Bay Area, nor did it attempt to analyze the qualitative value of locations and news content. Additionally,

the study did not analyze or overlay other regional datasets, such as those from the national Census Bureau or local governments.

### ***Mode of Analysis***

Analysis in this study utilized a mathematical framework designed by the researchers called the Geographic Consistency Model to calculate the consistency of coverage in regions collected from geotagged articles. The model was applied to four geographic scales for neighborhood, postal code, city, and county and weekly segments of the time-frame to detect regional patterns or trends and abrupt changes over time. As learned in the Literature Review, researchers decided to be inclusive of multiple spatial scales to conduct analysis and make conclusions that bridged context with similarities and differences across them.

### ***Geographic Consistency Model***

The purpose of the Geographic Consistency Model was to calculate and code the consistency of local news within specific regions over time. The model encompasses a set of Model Components utilized in the Model Formula and concluded with a Model Score, all of which the researchers deemed necessary to determine and communicate geographic consistency per examples and lessons shared in the Literature Review and referenced in the Model Components below.

There are seven Model Components a part of the Geographic Consistency Model:

1. **Region:** A specific geographic region that contained geotagged news articles.
2. **Content:** A collection of news articles about the Region that consist of one or more news sources filtered by topics or other criteria.
3. **Timeframe:** A specific date range the Content was published within.
4. **Date Segment:** A recurring interval equally spaced across the timeframe, such as a week or month. This component is reflective of the “regular and short intervals” that represent the “time-span needed for the event to unfold” (Galtung and Ruge 1965).
5. **Date Segment Baseline:** The number of past Date Segments to represent the baseline for comparing the following single Date Segment. This component is reflective of the organization’s defined “track record” consisting of “past encounters and evaluations” (Toff et al. 2021) and “continuity” of preceding coverage (Diakopoulos and Naaman 2011).
6. **Change Amount Threshold:** The maximum absolute percentage that the quantity of a Region’s Content within any Date Segment may change until it is deemed inconsistent with the average Content quantity of the Date Segment Baseline.
7. **Change Frequency Threshold:** The maximum percentage of inconsistent Date Segments allowed in the Timeframe for a Region to maintain consistency.

For this study, the Model Components were set with the following values:

- **Region:** Any neighborhood, postal code, city, or county within California included in the geotagged locations of news articles.
- **Content:** Articles geotagged by any of the three newsrooms.

- Timeframe: February 2020 to July 2022
- Date Segment: Week
- Date Segment Baseline: 4 weeks
- Change Amount Threshold: 25%
- Change Frequency Threshold: 40%

The two threshold components for this study were intentionally stationary for all Date Segments and Regions. The researchers designed them to standardize the limit for consistency while accommodating occasional or minor fluctuations in news coverage. These components aim to define the maximum acceptable frequency, as explained in the Literature Review, that readers perceive when consuming information from the same news sources (Atwood et al. 2012; Wenzel et al. 2018) and mediums (Hofeditz et al. 2021).

The components were computed in a three-step Model Formula for each Region:

1. Identify changes in coverage: Each Date Segment in the Timeline is assigned a percentage to represent the Region's Content change. This percentage is calculated by dividing the total number of articles published in the Date Segment by the average number of articles in the Date Segment Baseline. If the Timeline does not allow the full number of segments, such as in the beginning, all available past segments are utilized.
2. Measure consistency: The total number of changes that surpass the Change Amount Threshold are divided by the total Date Segments in the Timeline. The resulting percentage is then compared to the Change Frequency Threshold to determine whether the Region's Content is "consistent" or "inconsistent."
3. Determine consistency direction: The sum of changes that surpass the Change Amount Threshold will determine whether the Region's Content inconsistency is mostly "decreasing" or "increasing."

Considering the highly variable components and calculation process of the Geographic Consistency Model, this study used two coding types to simplify each region's outcome into a Model Score called the Geographic Consistency Score. The first coding applied the type of consistency that was either "consistent" or "inconsistent." The second coding applied the direction of consistency that was either "increasing" or "decreasing." Therefore, the Geographic Consistency Score had four potential outcomes for each region:

- Consistent-Increasing: News coverage has increased more at a low rate of change
- Consistent-Decreasing: News coverage has decreased more at a low rate of change
- Inconsistent-Increasing: News coverage has increased more at a high rate of change
- Inconsistent-Decreasing: News coverage has decreased more at a high rate of change

## Analysis

The study's analysis applied the Geographic Consistency Model to regions from geotagged news articles to determine their Geographic Consistency Score for multiple segments of the timeframe. As seen in Table 1, varying levels of consistent and inconsistent news coverage occurred across the entire timeframe in all four geographic scales analyzed—neighborhood, postal code, city, and county. A majority of regions

**Table 1.** Regional Summary across Entire Timeframe.

	Total Region Quantity	Percent of Regions with Consistent Score	Percent of Regions with Inconsistent Score
Neighborhoods	88	26% (23)	74% (65)
Postal Codes	173	9% (16)	91% (157)
Cities	84	12% (10)	88% (74)
Counties	15	13% (2)	87% (13)

(74-91%) were covered inconsistently. For example, out of 88 neighborhoods, 74% were scored as inconsistent, while coverage within the larger scales reached close to or above 90% inconsistent.

To show a comparison of how consistency of coverage might change over time, the percent of consistent regions was split for each calendar year (Table 2) and every third of the timeframe (Table 3).

In comparison with Table 1, which summarizes consistency across all geographic regions in the sample data, the summary in Table 4 only represents sample data from the nine counties that define the Bay Area where the three newsrooms reside, including Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

To better understand inconsistent coverage, a subset of the data in Table 1 was analyzed to identify the amount of weeks where a change occurred that surpassed the Change Amount Threshold (Table 5). Regions with inconsistent scores had an average of 61-69% of weeks with inconsistent coverage, while regions with consistent scores had an average of 33-36% of weeks.

**Table 2.** Regional Summary of Consistency % YOY.

	2020 (starting February)	2021	2022 (ending July)
Neighborhoods	34% (30)	23% (20)	28% (25)
Postal Codes	12% (21)	12% (21)	21% (36)
Cities	11% (9)	11% (9)	24% (20)
Counties	13% (2)	27% (4)	27% (4)

**Table 3.** Regional Summary of Consistency % Per 10-Months.

	1–10 months Feb–Nov 2020	11–20 months Dec 2020–Sept 2021	21–30 months Oct 2021–July 2022
Neighborhoods	28% (25)	27% (24)	31% (27)
Postal Codes	8% (14)	11% (19)	17% (29)
Cities	7% (6)	11% (9)	23% (19)
Counties	13% (2)	27% (4)	13% (2)

**Table 4.** Nine-County Summary across Entire Timeframe.

	Total Region Quantity	Percent of Regions with Consistent Score	Percent of Regions with Inconsistent Score
Neighborhoods	87	26% (23)	74% (64)
Postal Codes	167	8% (14)	92% (153)
Cities	80	11% (9)	89% (71)
Counties	9	11% (1)	89% (10)

**Table 5.** Averages of Weekly Inconsistent Coverage.

	Average Percent of Weeks with Inconsistent Change for All Regions	Average Percent of Weeks with Inconsistent Change for Regions with Consistent Score	Average Percent of Weeks with Inconsistent Change for Regions with Inconsistent Score
Neighborhoods	54.1%	33.2%	61.5%
Postal Codes	64.1%	35.9%	67.0%
Cities	65.8%	36.5%	69.8%
Counties	63.9%	32.6%	68.8%

**Table 6.** Distribution of Geographic Consistency Scores.

	Consistent-Increasing	Consistent-Decreasing	Inconsistent-Increasing	Inconsistent-Decreasing
Neighborhoods	0	100% (23)	3% (2)	97% (63)
Postal Codes	0	100% (16)	1% (1)	99% (156)
Cities	10% (1)	90% (9)	3% (2)	97% (72)
Counties	50% (1)	50% (1)	15% (2)	85% (11)

In [Table 5](#), there was a similarity of averages across geographic scales for all regions, consistent regions, and inconsistent regions. Consistent regions fluctuated closely to each other between 32-36%, a few percentage points below the Change Frequency Threshold of 40%, which hints at how close consistent regions were to surpassing the threshold and becoming inconsistent. The average for all regions (54-65%) was over the threshold, which summarizes the extent of which inconsistent coverage is impacting each geographic scale.

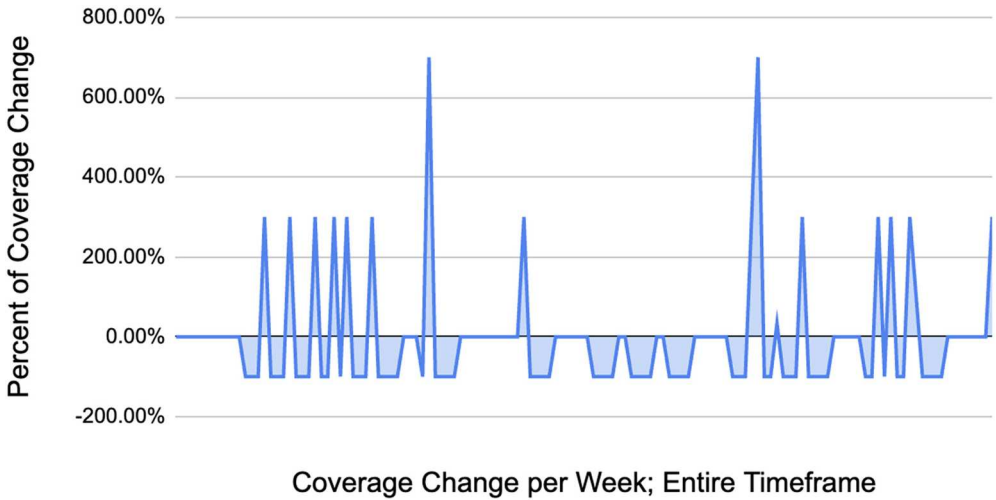
[Table 6](#) reviews the direction of consistency for consistent and inconsistent regions, showing a majority of regions experienced more reductions in coverage than increased spikes.

The remaining part of this section shares region-specific charts to visualize geographic consistency activity and patterns. The charts range in geographic scale and score to highlight visual patterns found across regions.

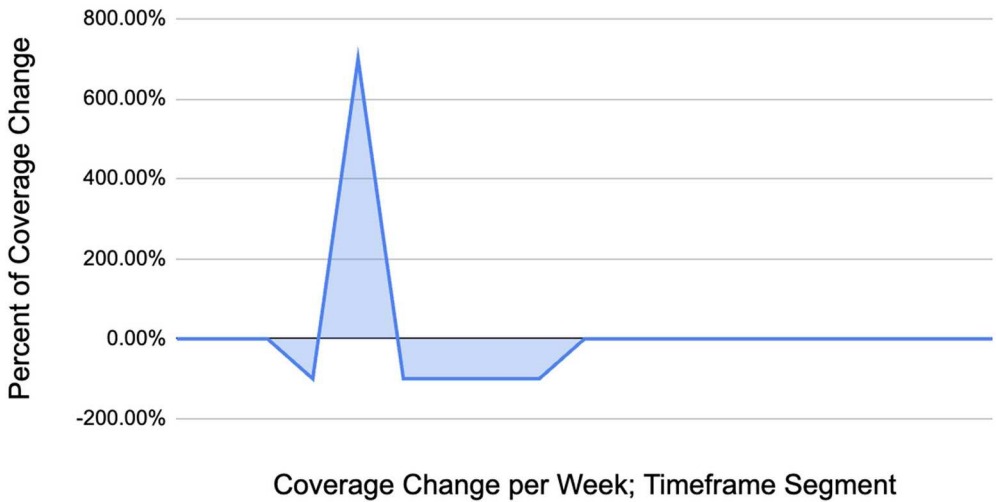
### **Region Analysis: Neighborhood #19**

Consistency Profile:

- Geographic Consistency Score: Inconsistent-Decreasing
- Inconsistent Change Frequency: 60.5% (78 weeks)
- Increasing Inconsistency: 13.2%
- Decreasing Inconsistency: 47.3%



**Figure 1.** News Coverage Consistency for Neighborhood #19.



**Figure 2.** News Coverage Consistency Segment for Neighborhood #19.

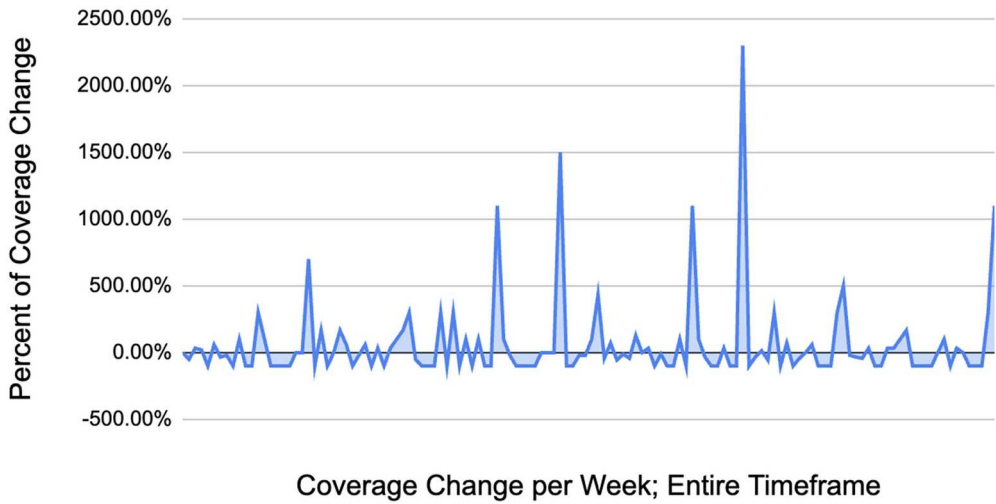
Figure 2 is a segment from news coverage in the region in Figure 1 to more clearly show a short period of coverage change. When moving across the chart’s horizontal axis, the change in coverage goes slightly down, then drastically up to about 700%, followed by repeated lower coverage until sustaining a 0% change. Within this short period, the neighborhood encountered relatively dramatic changes in news coverage, one of over a dozen that occurred during the study as seen in Figure 1.

**Region Analysis: City #2**

Consistency Profile:

- Geographic Consistency Score: Inconsistent-Decreasing

- Inconsistent Change Frequency: 84.5% (109 weeks)
- Increasing Inconsistency: 35.7%
- Decreasing Inconsistency: 48.8%

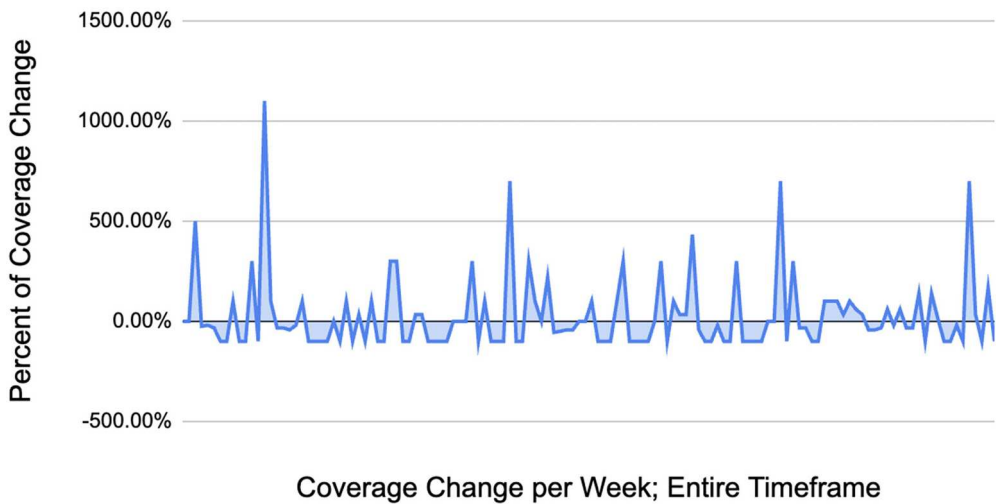


**Figure 3.** News Coverage Consistency for City #2.

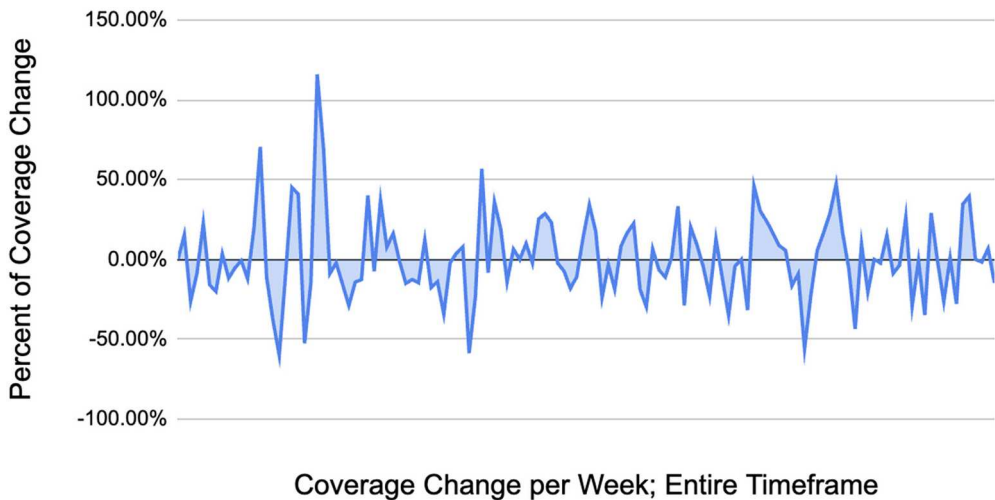
**Region Analysis: Postal Code #9**

Consistency Profile:

- Geographic Consistency Score: Inconsistent-Decreasing
- Inconsistent Change Frequency: 86.8% (112 weeks)
- Increasing Inconsistency: 34.1%
- Decreasing Inconsistency: 52.7%



**Figure 4.** News Coverage Consistency for Postal Code #9.



**Figure 5.** News Coverage Consistency for County #3.

### **Region Analysis: County #3**

Consistency Profile:

- Geographic Consistency Score: Consistent-Increasing
- Inconsistent Change Frequency: 29.5% (38 weeks)
- Increasing Inconsistency: 16.3% of the timeframe
- Decreasing Inconsistency: 13.2% of the timeframe

In [Figure 5](#), the county has a consistent score, achieved by sustaining its news coverage fluctuation below the Change Amount Threshold and Change Frequency Threshold. The changes that did surpass the Change Amount Threshold are almost equally split between positive spikes (16.3%) and negative dips (13.2%), except for about four weeks (3.1% of the timeframe), which saw more positive spikes in coverage.

### **Discussion**

The application of the Geographic Consistency Model on specific regions and geographic scales was capable of sufficiently measuring (RQ1) and summarizing (RQ2) fluctuations happening in their space. The analysis identified more inconsistent coverage across all four geographic scales and timeframe segments ([Tables 1–3](#)). This result confirmed our hypothesis (H1) that the number of inconsistent regions would be greater than consistent regions since the newsrooms had not implemented methods for explicitly measuring consistency. This finding does not necessarily suggest that a lack of implemented methods causes inconsistency but may happen more when unchecked. On the other hand, the hypothesis (H2) about regions within the primary coverage areas being more consistent ([Table 4](#)) was incorrect, or at least did not vary much from the consistency of all regions collectively. Whether or not the levels of consistency were intentional and strategic, the

results of the study invite the newsrooms to question the extent to which trends should continue.

In general, the researchers perceived the newsrooms covering neighborhoods, postal codes, cities, and counties in an exploratory way across boundaries that reached many different regions in a relatively short period of time rather than staying within a small subset of regions. For example, within the timeframe, the newsrooms published news in 46 different counties but only 33% (15) were covered during at least 10% of the 30-month timeframe. Similarly, out of the 590 neighborhoods, only 15% (88) were covered during at least 10% of the timeframe. An observation raised by the researchers was how the number of regions a newsroom can cover consistently is limited to its editorial capacity and geographic prioritization. Past research shows how “under-resourced environments” are linked to the effects of parachute journalism (Le Quéré and Jakesch 2022), where journalists do not “stay long enough to [...] follow up” on a story (Fondren, Hamilton, and McCune 2019). Table 1 shows that the newsrooms have core regions of interest for their journalism, which score well on consistency. Secondary or surrounding regions, which scored inconsistently or did not meet the timeframe minimum, may still be on the newsroom’s radar but are less likely to have designated editorial resources that can consistently listen for and follow up on news articles in the region. The researchers found this categorization of regional consistency and their percentages to be the most actionable (RQ3). Specifically, the percentage of inconsistency happening in specific regions shows how close they are to the threshold and how changes in editorial decisions for specific weeks would have improved consistency. For example, redistribution of editorial resources from regions covered too lightly into regions that were covered more but inconsistently may improve consistency to a point that improves its community representation.

Depending on the newsroom’s intended geographic scale, one hypothesis (H3) considered that certain regions may intentionally be inconsistent. For example, a newsroom focused on the county scale may report consistently about a particular county while, at the same time, inconsistently about the many neighborhoods within that county. The newsrooms a part of this study were perceived as regional rather than hyperlocal as they described their coverage area broadly on the county level or greater, such as “in Silicon Valley and beyond” (“The Mercury News,” 2024), “throughout the East Bay” (“East Bay Times,” 2024), or simply as “Marin County” (“Marin Independent Journal,” 2024). When comparing the analysis of inconsistency in counties with other geographic scales, a significant difference was not identified. The percentage of counties that scored as consistent remained under 30% (Tables 1–3), similar to other scales. The only considerable difference noticed was during the 10-month analysis in Table 3, where the last 10-month segment saw a gradual increase in consistent coverage over time across all scales except for counties, which became more inconsistent in that period. The researchers did not find reasons for this increase with the data available in this study and did not investigate further with the newsrooms, which highlights a need for future research to include additional data or research activities that could better contextualize this scenario.

When analyzing coverage change across time in Figure 1, an inconsistency pattern surfaced that showed how the particular neighborhood encountered a series of steep upward spikes of coverage followed by more elongated reductions. A close-up of one

of those changes, as exemplified in [Figure 2](#), showed how the decreasing changes (below 0%) tended to happen for a more extended time period after the increasing changes (above 0%), which were much greater vertically. The researchers referred to this collective fluctuation as the “Sailboat” based on its visual resemblance. Other research has perceived this scenario as “‘eventful’ periods followed by periods in which few changes occur” (Stanyer and Mihelj 2016), which may resemble parachute journalism (Fondren, Hamilton, and McCune 2019). As seen in the other examples in [Figures 3–5](#), the Sailboat appeared in multiple regions in the analysis, including at different geographic scales, such as cities and postal codes.

When attempting to identify patterns in the fluctuations of coverage for county-scale regions, the researchers found it more challenging than hyperlocal regions. [Figures 1–4](#) represent more hyperlocal regions and are less erratic, allowing patterns to be more easily realized, such as the Sailboat. However, when combining coverage changes across multiple hyperlocal regions, such as in [Figure 5](#), those patterns are less visible since they may not occur in the same period. Therefore, a broader regional summary of spatial analysis may provide a different explanation than individual summaries of smaller regions.

## Conclusion

The intentional multidimensionality of this study enabled its analysis to incorporate more than a single moment in news coverage and perceive long-term patterns of coverage change. This study helped improve the characterization of geographic consistency and its current relevance and potential impact on local journalism. The analysis clarified how well the three newsrooms are geographically consistent and provided specific information that can guide meaningful and actionable decisions for improvement. As the researchers have learned, other factors may influence editorial decisions, begging the question of how geographic consistency might respectfully complement or influence existing practices to an extent that sustains representation across coverage areas. After sharing results with the newsroom staff, they explained scenarios and conditions for why coverage becomes inconsistent are challenging to stabilize. From their perspective, more than a single cause may have contributed to inconsistency. Potential causes cited included decisions based on “inside-out time” (Ananny 2016), such as staff departures or lack of dedicated staffing in specific regions, which align with significant declines across the industry (Abernathy 2023), and “outside-in time” (Ananny), such as changes in topics within an area and the necessary reassignment of reporters for major weather events.

As part of the ongoing effort to sustain representation and trust, journalism must continue to nurture the delicate balance of these two temporal structures, by adapting to external societal changes while proactively limiting inconsistencies in its practice. The latest Reuters Institute report suggests that “taking these steps may require reallocating often scarce resources” (Ross Arguedas et al. 2023). Now, with geographic consistency better defined and modeled, how might it provide newsrooms with better guidance for allocating staff and resources? An intentional approach to measuring geographic consistency may be a step forward to understanding inconsistencies in current coverage and beginning conversations, as this study’s newsrooms have, on how to improve them to build lasting trust with local communities.

## Recommendations for Further Research

The following are additional opportunities that were identified to build on this research:

- *Investigating consistency barriers in newsrooms:* To consider a more in-depth look at the design of editorial strategies in local newsrooms to understand what decision-making policies or motivations contribute most to inconsistency in news coverage and how those might be stabilized.
- *Layering readership data on geographic consistency results:* To connect data from engagement and subscription with data on the consistency of local news in a community over time to learn how more or less consistent periods impact readership behaviors.
- *Adjusting variables in the Geographic Consistency Model:* To adjust the component values utilized in this study and/or apply them to other datasets to explore new perspectives of geographic consistency and provide supportive context or comparisons.
- *Comparing consistency in eventful or topical content areas:* To measure consistency across different content categories, such as crime and education, or regions, such as popular metropolitan centers and sparse rural areas, to provide context on how consistency varies across different types of coverage.

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No potential conflict of interest was reported by the authors. The author was executive director of Bloom Labs, which assisted data collection and had a business relationship with the three newsrooms in this study.

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