

# National Distraction: Media Control during China’s COVID Crisis

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## Abstract

Autocracies have long sought to control information, especially during crises. This paper examines how, after the end of China’s Zero-COVID policy, the Chinese government coordinated media strategies across state and commercialized outlets in the mainland and Hong Kong to mitigate damage to its legitimacy for a highly visible public policy failure. Using structural topic modeling, a quasi-experimental difference-in-differences empirical strategy, and large language model analysis, we identify significant shifts in topic distributions and framing of Zero-COVID following the policy change relative to our baseline media outlets – Hong Kong commercialized media. Specifically, we find a dramatic increase in non-COVID topics that coincide with China’s largest wave of cases and deaths during the pandemic across both Chinese-state aligned and mainland commercialized media. Moreover, we find a dramatic shift in how Chinese-state media cover Zero-COVID, evidencing a move away from depicting it as a COVID policy, instead associating it with non-COVID policies. Additionally, we conduct an event study for our difference-in-differences analysis, finding little evidence of pre-treatment trends, which lends support to a causal interpretation of our results. These findings underscore the importance of state control of media, as well as the openness of media environments. In times of crisis, autocracies can leverage their control of state outlets and ability to coerce private media under their review to distract from public policy failures and coordinate efforts to reframe policies in an effort to mitigate reputational harm.

*Keywords:* *authoritarianism · text analysis · censorship · COVID · propaganda*

# 1 Introduction

Authoritarian states face a difficult task when controlling information during crises of their own making. In particular, agents of the censorship and propaganda apparatus confront challenges from a variety of angles. Before their mass audience, their job of persuading citizens of the state’s efficacy and benevolence becomes all the more difficult when the plain facts of a crisis spill into public view. Before their bureaucratic audience, policy-induced crises are moments of uncertainty and potential rapid change, when it is unclear whether the regime will abandon its disastrous course and, if so, for what. This makes penning any defense or criticism of the policy in question dangerous for one’s career: having written an editorial that becomes politically incorrect days after its publication rarely bodes well for the author, and a poorly conceived defense can incite more anger in an already restive population. These incentives only become more tangled when profit motives come into play: for commercialized media in an authoritarian information ecosystem, the drive to print profitable news about the crisis can collide directly with the need for political safety.

This paper examines how censorship among Chinese media varied across state affiliation and media market context during the end of China’s Zero-COVID policy; a period marked by spontaneous protests, a burgeoning COVID wave, an abrupt policy shift, and a massive surge in infections likely affecting a large portion of the country. We expect that state-affiliated outlets in mainland China have the strongest incentives to distract readers from information indicative of policy failure. We theorize two complementary strategies that an authoritarian government may adopt to preserve its reputation during a crisis: Flood the media environment with irrelevant information to distract the general public (flooding) and reduce public exposure to reputationally damaging information (friction). Using structural topic modeling, we identify the topics covered by news outlets in mainland China and Hong Kong. We then apply a difference-in-differences strategy to analyze how 59 news outlets differed in their topical content, using commercialized media in Hong Kong as a common baseline.

Three patterns emerge. First, we find that after the policy change, mainland media outlets, regardless of state affiliation, increased their coverage of unrelated topics more than commercialized outlets in Hong Kong did. Moreover, the difference between commercialized and state media in the mainland is statistically indistinguishable from zero, a finding we interpret as a reflection of the Chinese Communist Party’s intense control over the mainland media environment in this time period. Second, Hong Kong state media outlets also exhibited flooding-consistent behavior relative to their local commercialized media, indicating their ability and willingness to follow party directives even if it risked losing market share in a competitive media environment. Third, while the initial evidence regarding friction is less consistent with our expectations, a large language model-assisted

examination of the mentions of Zero-COVID provides a suggestive explanation for our initial null result: state media in the mainland and Hong Kong stopped referring to Zero-COVID as a policy, while repurposing it for unrelated discussions, a shift that topic models based on term frequency are poorly equipped to detect.

These results make four notable contributions to the literature on autocratic propaganda and censorship. First, we extend existing theories of flooding to authoritarian responses to a major health crisis which rapidly shifted the valence of a policy that was closely associated with the autocratic country’s leadership [1]. Second, while research on crisis-time propaganda in China tends to rely on qualitative readings of a small number of publications [2], our study tracks how crises are covered through a systematic analysis based on a novel and large dataset of news articles covering a diverse set of state and commercial media outlets located both in mainland China and Hong Kong. This dataset enables us to isolate the independent effects of media ownership and media environment openness on media behavior in a time of policy crisis. Third, we contribute to the literature on propaganda strategies. Existing studies have identified three functions of propaganda: pro-regime persuasion [3, 4, 5, 6], signaling of regime strength [7, 8, 9], and negative legitimation [10, 11, 12, 13]. We build on this literature by showing how the regime’s information strategy shifts under crisis by redirecting attention and draining politically contentious terms of their original meaning. Fourth, the contrast of our topic model and large language model results highlights an interesting methodological point: while topic models are useful for identifying the topics that are covered in a corpus, their design makes it easy for them to miss changes in how terms are framed over time. In contrast, large language models can be used to precisely identify changes in how terms are presented in text with a remarkable degree of consistency both with other models and with human coders.

## 2 Background

China’s media sphere has gone through numerous reforms over the past decades. Previous literature has examined how reforms reduced bias through marketization, as commercialized media responded to profit incentives with decreased propaganda coverage [14]. Other research has examined how delegation of authority within Chinese newspapers affects written products [15]. More recently, technological innovations have sought to reinvent propaganda in the digital age by increasing citizens’ participation in propaganda production [16], with mixed success [17, 18]. While research has shown that, even in authoritarian states like Russia and China, journalists can engage in within-the-system resistance and defiant contestation [19], journalism education in China still heavily emphasizes pro-regime ideological content [20]. As the Xi era has continued into its third term, scholars have noted that the state’s grip on the media sector has grown tighter [21].

The initial outbreak of the COVID-19 pandemic reflected poorly on the Chinese government. Despite assurances in January 2020 that the situation in Wuhan was under control, the outbreak quickly spiraled into epidemic and eventually pandemic proportions. However, the Chinese central government's response was swift and highly effective in the pandemic's early years. The Zero-COVID strategy, backed by swift construction of hospital facilities in Wuhan and stringent lockdowns, effectively contained, for a time, spread of the virus [22]. Indeed, while many other nations, such as the United States, struggled with pandemic conditions through the spring and summer of 2020 and beyond, Chinese citizens had much to be proud of in their government's response, which allowed for a near return to business as usual.

This would not last. As COVID-19's variants became more contagious, China's response began to show its limits, and a source of pride gradually turned into a source of frustration. Among the most public instances of frustration was the Shanghai lockdown, where ineffectual partial lockdowns gave way to a strict lockdown. Difficult conditions lasted for months, leaving many citizens in dire straits that lacked access to basic provisions or medicines. While the Shanghai lockdown may be most famous outside China, failures in lockdown conditions were in fact occurring throughout the country in 2022 in many less internationally connected localities. Whether it be a bus of quarantined citizens suffering a fatal accident or more mundane failures in food deliveries, grievances with the state's Zero-COVID strategy were mounting even as the state committed in strident language to the policy's indefinite continuation. In Xinjiang, for instance, some cities were locked down for months upon months at a time, leaving locals in difficult circumstances.

These difficult circumstances came to a head in an incident which would spark spontaneous mass-protest across the country: the Urumqi fire. On November 24, 2022, an apartment building in Urumqi caught fire, killing several of its mostly Uighur residents. Rumors abounded online regarding reasons for the casualties, such as stories of individuals locked in their apartments from the outside due to pandemic controls or firefighters being unwilling or unable to approach quarantined apartments. Within days, vigils in solidarity with the victims and protests expressing anger with government policies had spread across the country, especially across numerous university campuses, in a series of events which would become known as the White Paper Movement.

These protests ended nearly as quickly as they began, and the number of protesters seems to have been relatively low. Still, they were unprecedented in Xi Jinping's tenure and seemed to shake the regime's previously unflappable confidence in Zero-COVID. Officials who had been swearing their unswerving loyalty to Zero-COVID merely weeks before made a rapid about-face as the policy was dismantled in late 2022. At the same time, a COVID wave of unprecedented size made Zero-COVID untenable. On December 7<sup>th</sup>, a critical juncture in our analysis, China abandoned two key tenets of its COVID

strategy: centralized quarantine and tracking of health codes, both of which undergirded China’s pandemic control system. On December 12<sup>th</sup>, the National Health Commission was already fielding questions from journalists concerned that China’s medicine stockpiles were insufficient for the mounting wave.

By December 26<sup>th</sup>, China had shifted from mass PCR testing of asymptomatic citizens to ending testing and public tracking of COVID cases entirely. A large and deadly COVID wave followed, creating further grievances against the state. Table 1 presents a detailed breakdown of China’s COVID response from the onset of protests in November 2022 through the subsequent outbreak. This rapid sequence forced a state media system that had made Zero-COVID central to its claims of governance success into an abrupt reversal, which it sought to manage without provoking public backlash.

### 3 Theory

In politics, leaders generally risk losing support when their policy priorities fail. Ineffective policies signal the incompetence of autocratic governments and their lack of concern with public well-being by imposing various forms of costs on society, as such policies frequently lead to unrealized economic potential, deterioration in the quality of life, and even an increase in health risks. Widespread dissatisfaction, at times expressed in mass protests that can threaten the regime in extremis, reveals to autocrats that the continuation of their favored policies places their survival at risk.

Autocrats have tools at their disposal to keep public discontent from escalating into mass movements [23, 24, 25, 26, 27, 28]. Before such discontent accumulates to a dangerous point, however, autocrats also tend to have a large degree of control over how domestic media outlets cover failing policies while limiting public exposure to foreign media. Such control, in turn, provides autocrats with several tactics to enhance their survival. First, they may attempt to reframe the policy failure as a success, *persuading* the public that the state’s actions are necessary and positive. This can be particularly effective when the policy’s effects are difficult to directly observe. Second, the leadership could attempt to *deflect blame* for the policy failure towards another party. However, a reasonable culprit may not always be available. Assigning blame to an obviously irrelevant party might incur a backlash against the leadership, thereby defeating the very purpose of this strategy. Third, autocrats can attempt to distract the public from a policy failure, i.e. engaging in a *flooding and friction* strategy [1]. Flooding and friction can be useful when the government faces an unpreventable event that poses a considerable threat to its reputation, especially if the government perceives the populace to be unpersuadable. In this strategy, the state increases friction for seekers of potentially damaging information, as this raises the marginal costs of obtaining such information and thus deters citizens from doing so [1]. Simultaneously, the regime also floods the

|                           |                                                                                                                                                                                                                   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11/24/22 <sup>1</sup>     | Fire in an Urumqi apartment building leads to the reported deaths of 10 residents, leading many to question the role of pandemic restrictions in their deaths.                                                    |
| 11/25/22 <sup>2,3</sup>   | Protests erupt in Urumqi over fire. Small protests follow in Beijing, Shanghai.                                                                                                                                   |
| 11/27/22 <sup>4,5</sup>   | In an early move loosening Zero-COVID restrictions, seven districts in Guangzhou announce that several groups can forgo mass testing requirements.                                                                |
| 11/28/22 <sup>6</sup>     | In response to protests on campus, prominent universities shutter in Beijing, and the police crackdown on protests intensifies. At this point, protest activity largely dies down.                                |
| 11/30/22 <sup>7</sup>     | Beijing announces a loosening of restrictions mirroring Guangzhou’s three days prior.                                                                                                                             |
| 11/30/22 <sup>8,9</sup>   | Guangzhou and Chongqing further loosen requirements, forgoing centralized quarantine in favor of home quarantine for close contacts of COVID infections.                                                          |
| 11/30/22 <sup>10</sup>    | Guangzhou removes lockdown measures on “temporary control zones” , continuing some measures in high-risk areas. Officials stress that PCR testing sites are being removed and mass testing will not be returning. |
| 12/4/22 <sup>11,12</sup>  | Public transit and public places see easing of restrictions across the country.                                                                                                                                   |
| 12/7/22 <sup>13</sup>     | Health codes and centralized quarantine are abandoned across China in a nationwide decision.                                                                                                                      |
| 12/7/22 <sup>14,15</sup>  | NHC provides guidance through multiple notifications on how to cope with China’s substantial relaxation of the national COVID policy                                                                              |
| 12/8/22 <sup>16</sup>     | Hong Kong further loosens quarantine requirements.                                                                                                                                                                |
| 12/11/22 <sup>17</sup>    | Media reports that the travel code will be eliminated starting December 13th.                                                                                                                                     |
| 12/14/22 <sup>18</sup>    | China stops tracking asymptomatic COVID-19 cases                                                                                                                                                                  |
| 12/14/22 <sup>19</sup>    | National Health Commission official addresses public concerns that medicines are insufficiently stockpiled and hospitals are unready for the already looming COVID wave.                                          |
| 12/19/22 <sup>20,21</sup> | Several provinces change COVID guidelines to allow individuals currently sick with COVID to come to work regardless as cases continue to grow.                                                                    |
| 12/19/22 <sup>22</sup>    | Numerous cities move classes online as COVID surges across the country.                                                                                                                                           |
| 12/23/22 <sup>23</sup>    | China records 3,761 new confirmed cases.                                                                                                                                                                          |
| 12/25/22 <sup>24</sup>    | China stops publishing daily COVID-19 case counts.                                                                                                                                                                |
| 12/26/22 <sup>25</sup>    | China announces it will downgrade COVID-19 to a Class B infectious disease and cancel quarantine requirements for inbound travelers.                                                                              |
| 12/27/22 <sup>26</sup>    | A large press conference explains the previous day’s shift, explaining that the priority is now on treatment instead of controlling spread.                                                                       |
| 1/6/23 <sup>27</sup>      | By this time, the COVID surge is in full force. According to some estimates, almost 90% of all people in Henan, China’s third most populated province, have been infected with COVID-19 by this point.            |
| 1/27/23 <sup>28</sup>     | The NHC claims COVID cases are now declining.                                                                                                                                                                     |
| 2/16/23 <sup>29</sup>     | Xi Jinping and other leaders pat themselves on the back for a job well done, hailing their response and policy shift as a miracle in a publicized meeting of top officials.                                       |

Table 1: Timeline of the end of Zero-COVID and the beginning of the subsequent COVID wave in China

media marketplace with irrelevant articles. Flooding and friction go together somewhat mechanistically, as limited journalistic resources and the need to fill physical pages in a newspaper and web-pages online mean that if a topic is censored, something else must take its place. Similarly, if an editor increases coverage of some irrelevant topic, other topics will inherently account for a smaller proportion of the daily news corpus.

### **3.1 Flooding and Friction**

In our study, we focus on China’s reversal of its Zero-COVID policy between November 2022 and January 2023. For the Chinese government, this period marked a crisis of public confidence that was triggered by the policy and was reflective of multiple failures. These include draconian prevention measures that caused severe disruptions for nearly every Chinese citizen, the consequent reduction in economic activities that weakened consumer confidence, and under-preparedness for the outbreak that contributed to an undisclosed number of deaths following the policy’s relaxation. Given the pervasiveness of policy failure in this case and its ready observability for the vast majority of citizens, we hypothesize that a distraction strategy consisting of flooding and friction would be the most useful of the three tactics available to the government during and after the policy transition.

Our reasoning for this lies in the nature of the problem faced by the party-state. The Zero-COVID policy was strongly associated not just with the frontline bureaucrats who engaged with citizens, but with the leader-centered party itself. This would make it very difficult for the Chinese Communist Party (CCP) to reframe the policy failure as the responsibility of anyone other than those in the central leadership. Additionally, as cases mounted rapidly across the country in December 2022 and January 2023, the consequences of Zero-COVID’s failure became highly visible and deleterious to everyday Chinese citizens. The unpopularity of compulsory COVID tests, limits on mobility, and rising case numbers combined to generate a crisis for which the authorities could not find a convincing scapegoat. Simultaneously, the scale and observability of both the lockdowns and the subsequent spread of COVID would have likely negated any effort that state media could make to re-frame the policy as effective.

Recognizing the inefficacy of persuasion or shifting blame, the government could instead rely on a strategy of distraction, or flooding and friction, in which the government uses state media outlets to publish articles emphasizing topics unrelated to its policy failure while restricting topics relevant to the ongoing COVID crisis. If successful, this would make the crisis less salient to the public and reduce grievances against the state.

This strategy offers several advantages over alternatives in a period of deep crisis. First, flooding tends to be low cost for an autocracy. Autocrats often control media outlets, allowing for centrally directed coordination of messaging. Second, flooding can be

produced very quickly in response to a crisis. Media can be told to rapidly increase coverage of entertainment news or other “fluff pieces,” which may be easier to produce than works designed to persuade an angry public. Finally, flooding has the advantage of being possible to combine with propaganda that legitimizes the regime and delegitimizes alternatives. The Chinese state has a history of coordinating flooding activities in response to a crisis, as in August 2014, when China’s Yunnan province experienced a disastrous earthquake resulting in hundreds of deaths and thousands of injuries. The following day, the government engaged in a coordinated effort to instead cover a three-year-old celebrity scandal involving the controversial internet personality Guo Meimei.

Given these advantages of distraction and events surrounding the Zero-COVID policy change, we expect that Chinese state media would promote topics unrelated to COVID in periods coinciding with events that threatened the regime’s reputation and stability.

H1a: State media engage in a flooding strategy after an abrupt policy change, increasing coverage of irrelevant material

In addition, autocrats can practice friction or utilize their control over media environments to restrict the flow of potentially harmful information. Although some media outlets may not fall under direct government financing and, therefore, may have market-induced incentives in their day-to-day operation, such outlets are constantly at risk of being targeted by government coercion. Market-oriented outlets may enjoy liberty in non-sensitive areas such as entertainment, but their coverage of sensitive topics, such as policy failures, is subject to censorship and even punishment.

Friction is highly complementary to flooding. Theoretically, friction raises the costs of information that is harmful to the regime, while flooding reduces the costs of less harmful information. Mechanistically, as irrelevant topics increase in proportion, other topics must decrease as well. Thus, friction would entail reducing state media coverage of the pandemic during the period when the Zero-COVID policy was abandoned and when, as a result of the abandonment, case numbers skyrocketed.

Unlike flooding, friction has some risks. First, it is more easily detectable, as existing stories that were produced prior to the implementation of this strategy may need to be deleted. Second, this strategy is of limited value when the demand for alternative sources of information is high, and when foreign media that represent competing views are insufficiently censored. Consequently, we do not expect coverage of COVID-19 or that of the government’s response to the pandemic to disappear entirely, but we anticipate a decline in the salience of COVID-related topics.

H1b: State media increase friction for potentially sensitive material immediately after an abrupt policy change, reducing coverage of COVID-19

### 3.2 Public vs. commercialized media

The role of commercialized, non-state funded media complicates the picture, as does the broader media environment. To what extent do commercialized media outlets conform to flooding and friction policies? Additionally, what constraints does media competition place on the state’s implementation of these policies? This topic is theoretically examined in “Government Control of the Media” by Gehlbach and Sonin [29]. They model the relationship between an authoritarian state and a commercialized media actor<sup>1</sup> that values advertising revenue, but also may be bribed by the state to adopt a pro-government bias. The authors characterize the equilibrium bias ( $\beta_0$ ) of the commercialized media outlet using the function below:

$$\beta_p^*(0) = \max \left[ 0, \frac{\psi\theta(1-2q) - \alpha\gamma q}{2\psi(1-\theta)q} \right] \quad (1)$$

The parameter  $\alpha$  reflects the degree to which state media are able to coerce commercialized media into sharing its bias. If that parameter is close to or equal to zero, then the bias will be minimal to nonexistent, as the commercialized outlet will follow a market-oriented incentive to provide consumers with high-value information. In mainland China, we expect that  $\alpha$  will be moderately high. While we expect that the CCP enjoys many instruments of coercion for non-CCP-run news publications, there do appear to be cases where commercialized media are not required to participate in state media campaigns [30]. In contrast, we expect  $\alpha$  to be lower in Hong Kong, as commercialized Hong Kong media were not subject to the same degree of direct censorship by the Chinese state.

H2: Mainland Chinese commercialized media exhibit higher flooding and friction behavior than Hong Kong commercialized media, but less than that of state media outlets

The parameter  $\psi$  refers to the size of the broader information environment. The larger the information environment is, the more competitive pressure media outlets face. Higher levels of media pressure act as a constraint on the behavior of state media, as they risk losing consumers to commercialized competition if they publish content with excessive levels of bias. Since its return to Chinese control in 1997, Hong Kong has also become home to several state-owned media outlets that coexist with commercially operated counterparts. Accordingly, we expect China’s state media to behave differently depending on whether they are based in Hong Kong or based in the mainland.

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<sup>1</sup>Gehlbach and Sonin (2014) use the term private media, as they conceptualize revenue sources as being the primary driver of editorial decisions. While we agree that financial independence is a necessary source of incentive for media outlets to engage in divergent strategies from state media, the Chinese case, where state control includes funding and other methods of control, has led us to adopt the term “commercialized” media.

H3: State media in Hong Kong demonstrate lower levels of flooding and friction behavior than the mainland, yet higher than that of commercialized media in Hong Kong.

We should note that in our theoretical and subsequent empirical analysis, we consider Hong Kong commercialized media to be the primary reference group with which mainland media and Hong Kong state media are compared. Given our interest in the impact of how an authoritarian media environment and state control impact media behavior, Hong Kong commercialized media serve as a control group for both factors, as these outlets lie outside of the great fire wall and are consequently not subject to the same censorship standards as mainland-based media or state media in Hong Kong.

## 4 Data

We compile news articles from sources based in China and Hong Kong. This data was obtained by UC San Diego’s 21<sup>st</sup> Century China Center, articles scraped by the authors using the *newspaper3k* python package, and articles collected manually from WiseNews. Altogether, we have gathered news from 59 different news outlets that include, subject to data availability, commercialized media and state affiliated media based in mainland China and Hong Kong. Appendix Table 3 displays the full list of outlets included in our analysis.

Comparing mainland and Hong Kong media has a methodological advantage: The two media environments share some important cultural similarities. Most importantly for our project, the crisis period (December 2022 - February 2023) coincides with the Chinese Spring Festival, which attracts more coverage of culture and history topics than during other periods for non-distraction reasons. Media outlets in Hong Kong operate in a sufficiently similar cultural context as their mainland counterparts and can be expected to have similar incentives in covering these aspects of culture and history. Consequently, we have more confidence in attributing any difference between the treated and control media outlets to flooding and friction than if we were to select a more culturally dissimilar pair for comparison.

## 5 Methods

In this section, we discuss both the measurement strategies used to quantify media bias and the empirical strategy that we use to test our hypotheses.

### 5.1 Measurement

**Media Classification** In classifying media outlets, we sought to create a scheme (based on prior work such as Qin et al. [31]) delineating which media outlets had closer relations

to the state. In China, all publishing is subject to state control, but some outlets possess a closer connection to the party-state than others. Party dailies (such as the People’s Daily or other provincial dailies), for instance, came into existence as part of the foundation of the PRC and function largely as the official mouthpieces of local or national party organs. Other outlets established during the reform period, while still connected to local propaganda bureaus and party-organized publishing houses, operate with less state funding and often publish more commercially viable news due to their stronger profit motive. Our scheme examines whether the newsroom of the media outlet is directly part of a publicly traded or privately owned entity that is not itself state-controlled. If it is, we call this media outlet commercialized, as its editorial decisions are more likely to follow financial motivations. Most media outlets in China do not fall under this category; even if the publishing and marketing departments are part of a publicly traded company, most Chinese newsrooms are separated from publicly traded companies and are thus insulated from financial incentives. Only two publications in the mainland, Caixin and Caijing, fit the characterization of commercialized media. Our Hong Kong outlets are more evenly split, reflecting the different history and current legal status of newsrooms in Hong Kong.

**Topic Proportions** Our hypotheses imply a measurement of how media coverage changes over time. In particular, we need to identify topics that could plausibly be used to divert attention from an ongoing domestic crisis. Additionally, we need a measure of COVID-19 coverage, both before and after the abandonment of the Zero-COVID policy. To address these measurement challenges, we turn to the structural topic model (STM) [32]. We fit the topic model on the full corpus while removing stop words and punctuation. We allowed the model to decide the optimum number of topics using the spectral algorithm, and then grouped topics into 10 broader categories based on their content.

This brings us to a larger question. What topics would best be used to represent a distraction strategy? The literature on flooding is instructive in this case. [1] describes a case in which a scandal involving a celebrity was used to distract from the Yunnan earthquake in 2014. Similarly, Lu and Pan (2020) also find that Chinese state media employ flooding strategies using apolitical entertainment news [33]. The value that entertainment and cultural news offers as a distraction topic is that it tends to have high valence while also being largely apolitical. It can also be produced quickly with little need for journalistic effort. The last quality is of particular value during times of crisis, as state media typically need to produce content to satisfy the needs of rapidly changing political situations. To measure entertainment, we combine all topics that relate to entertainment news, culture, travel, and history. These categories are characterized by words like culture, tradition, travel, tourism, food, movies, museum, poem, art, and music.

An additional topic that may be relevant to distraction is international news. Foreign

news produced by Chinese media has been found to contain negative legitimization narratives that serve to improve regime stability by making alternative systems of government appear less appealing [13]. Increasing international news coverage could complement such a rhetorical strategy. To measure foreign news coverage, we combine all topics that relate to news targeting countries and events that occur outside of mainland China or Hong Kong.

Finally, to measure friction, we combine several topics that relate directly to COVID-19, healthcare, and pandemic policy into a single topic group called “Public Health.” Based on the sample of articles we have read, we believe this topic represents media’s coverage of the pandemic over this time period. Relatedly, we also post-policy changes in how the Chinese media used a keyword that had become closely attached to the Zero-COVID policy: *qingling* (清零). In doing so, we assess the extent to which this specific policy, which became a sensitive topic around December 7, 2022, was being censored.

## 5.2 Empirical Strategy

To test our hypotheses, we rely on a difference-in-differences identification strategy [34]. This involves estimating the following regression equation:

$$Y_{it} \sim \beta_1 P_t \times MS_i + \beta_2 P_t \times MC_i + \beta_3 P_t \times HS_i + \gamma_i + \theta_t + \epsilon_{it} \quad (2)$$

In the equation above,  $Y$  represents topic proportion of relevant topic groupings in a given publication  $i$  and week  $t$ . To test the flooding hypothesis (1a), it will take the form of the Culture and History topic group, the Foreign Affairs topic group, and the sum of both of those groups. For the friction hypothesis (1b), it will be represented by the Public Health topic group.

For our hypotheses, the relevant policy shift ( $P_t$ ) is the abandonment of the Zero-COVID policy on December 7th, 2022 (see Table 1). Prior to that date, the Zero-COVID policy had been featured prominently in Chinese state media as a source of political legitimization because, up to that point, China had suffered relatively few COVID deaths compared to most other countries. After the abandonment of the Zero-COVID policy, the political value of Zero-COVID coverage inverted, as it would bring attention to a growing number of cases and deaths that the government was no longer making an effort to reduce.

We differentiate between four groups where we expect strategic changes in coverage after the Zero-COVID policy change: state media in the mainland and in Hong Kong, and commercialized media in the mainland and Hong Kong.  $MC_i$ ,  $MS_i$ , and  $HS_i$  in Equation 2 represent three of four groups: state media in the mainland, commercialized media in the mainland, and state media in Hong Kong. The omitted category, commercialized media in Hong Kong, functions as the common reference group. Consequently,

the interaction between the policy reversal indicator ( $P_t$ ) and each media indicator represents the difference in pre-post change between the media category and Hong Kong-based commercialized media.

In addition,  $\gamma_i$  and  $\theta_t$  denote outlet and time fixed effects. Because  $P_t$  does not vary by media type and the media indicators do not vary by time, their main effects will be absorbed by the fixed effects. Standard errors are clustered at the outlet level.

The parameters, estimated in Equation 2, directly relate to our hypotheses. When we estimate the model with distraction topics as our dependent variables, we expect  $\beta_1$  to be positive and statistically significant. This would indicate that distraction topics are covered to a higher degree by mainland state media after the Zero-COVID policy change (H1a). When we use the Public Health topic group as our dependent variable, we expect broadly similar coefficient effect size with the opposite sign. Our friction hypothesis suggests that this topic should decline in its production across state media outlets in the post-policy change era (H1b).

We expect to observe similar outcomes though to lesser degrees when examining commercialized mainland media and state media in Hong Kong. According to hypotheses 2 and 3, we again expect to observe flooding ( $\beta_2 > 0$  and  $\beta_3 > 0$  when  $Y :=$  distraction topics) and friction ( $\beta_2 < 0$  and  $\beta_3 < 0$  when  $Y :=$  COVID-19 topics). However, we expect these effects to be smaller in magnitude than the effects associated with mainland state media.

## 6 Results

### 6.1 Descriptive Analysis

Figures 1 and 2 provide graphical descriptions of the over-time prevalence of two topic groupings: culture and history (flooding) and public health (friction). The upper panel within each Figure presents the trend of mainland Chinese media and the lower panel Hong Kong-based media. For each location, we present findings for both commercialized and state media.

Figure 1 suggests that during the period after the state relaxed the Zero-COVID policy in early December 2022, as indicated by the vertical line, the proportion of culture and history topics increased among state media in both locations. While commercialized outlets in mainland China behaved similarly relative to their state peers, commercialized outlets in Hong Kong seemed to have largely adhered to consumer demand, showing the least tendency to distract the public with irrelevant information. In further qualitative analysis of a subsample of the papers representative of this topic, we confirmed that articles in our culture and history topic were indeed largely local culture and history

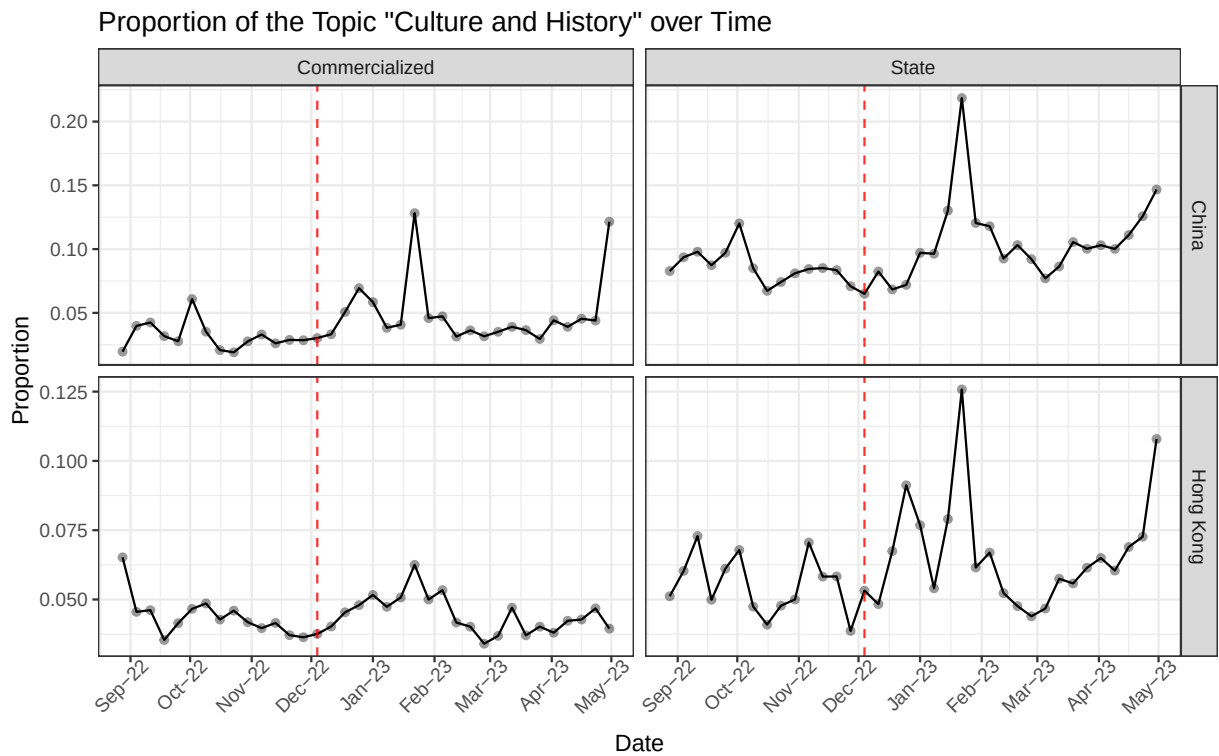


Figure 1: Four line charts which chart the proportion of the culture and history topic over time in commercialized and state media in mainland China in the upper row and in Hong Kong in the lower row. All experience a substantial spike after the red dotted line representing the end of Zero-COVID, with a noticeably smaller spike in Hong Kong commercialized media.

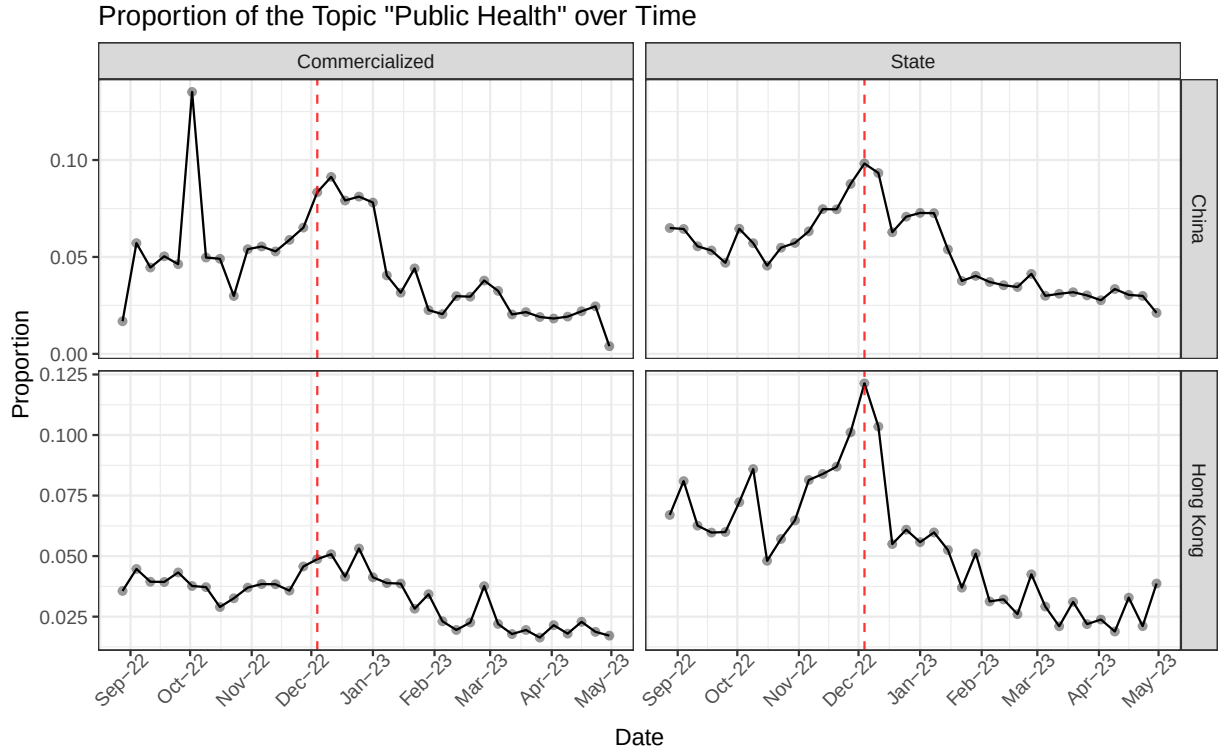


Figure 2: Four line charts which chart the proportion of the public health topic over time in commercialized and state media in mainland China in the upper row and in Hong Kong in the lower row. All experience a substantial drop off after the red dotted line representing the end of Zero-COVID, with a noticeably low and smaller drop off in Hong Kong commercialized media.

stories unrelated to the disease outbreak rapidly spreading through the country.<sup>2</sup>

Figure 2 examines the proportion of public health coverage after the Zero-COVID policy proved unsustainable, with the vertical red line indicating the week in which the Chinese state loosened the quarantine policy. Accordingly, the prevalence of public health topics takes a noticeable dive among the state media outlets in both locations. The change in mainland China's state media appears less drastic, although it displays a downward trend, as our theory expects. Moreover, mainland China's commercialized media once again performed similarly to their state-affiliated peers. The same pattern, however, does not exist among Hong Kong outlets to the same extent.

Figure 3 plots the rise and fall of foreign affairs coverage over the same period. In both mainland China and Hong Kong, the salience of foreign affairs rose on the eve of the Zero-COVID policy's reversal but rapidly declined afterwards among state outlets. Neither commercialized outlets in mainland China nor their counterparts in Hong Kong demonstrated a similar trend.

<sup>2</sup>To examine how both topics that could be used to distract media consumers from the Zero-COVID policy, we add both topics into a single topic group, Distract. The trend in how this combined topic changes over time by media type is presented with Figure 7 which can be found in our Appendix.

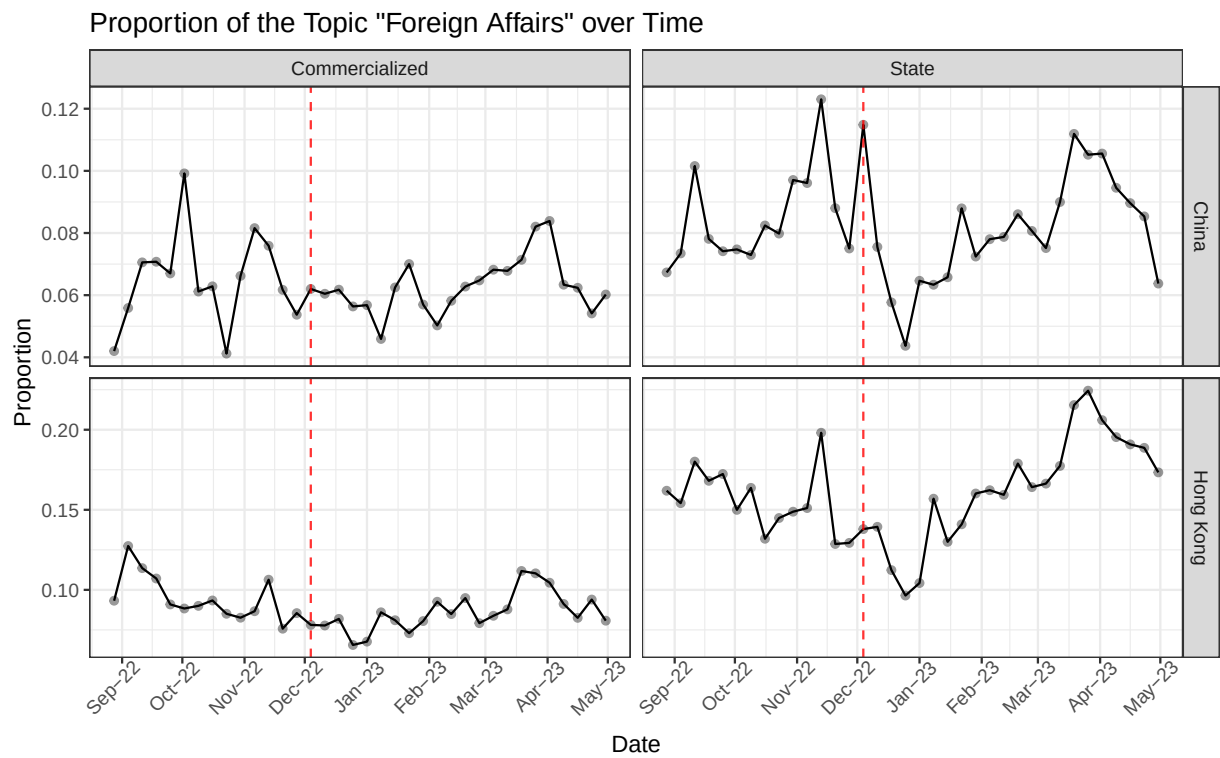


Figure 3: Four line charts which chart the proportion of the foreign affairs topic over time in commercialized and state media in mainland China in the upper row and in Hong Kong in the lower row. In state media, foreign affairs increased leading up to the end of Zero-COVID

## 6.2 Regression Analysis

In light of the descriptive analysis, Panels A, B, and C in Figure 4 present the results of our difference-in-differences analysis for three flooding outcomes: the topic proportion of culture and history (Panel B), that of foreign affairs (Panel C), and that of the two topics combined (Panel A). In each figure, we set the change in coverage before and after December 7 (the date of the policy reversal in mainland China) among Hong Kong-based commercialized outlets as the reference category. Appendix Table 5 presents the corresponding regression results, while Appendix Figure 8 displays the results of direct comparisons between coefficients.

Panel A provides partial support for our hypotheses. First, following the policy change, state outlets in both locations increased coverage of distraction topics significantly more than the common reference group – commercialized outlets in Hong Kong ( $p < 0.01$ ). Second, in accordance with H2, mainland commercialized outlets increased their coverage of distraction topics significantly more than their Hong Kong-based counterparts after December 7 ( $p < 0.01$ ).

While the behavior of Hong Kong-based outlets aligns with our theory of flooding, Appendix Figure 8 shows that the difference between mainland state and commercialized media is small and statistically insignificant. A likely interpretation is that the increasingly controlled environment in the mainland encourages convergence between state and commercialized actors, while the relatively market-driven environment in Hong Kong, despite the Chinese government’s recent attempts to tighten political control, continues to offer commercialized actors room for maneuver.

Panels B and C break down distraction topics into two sub-categories: culture & history and foreign affairs. We find stronger evidence for our hypotheses in Panel B. In line with H2, the share of cultural and historical coverage by mainland commercialized outlets increased significantly relative to that of their counterparts in Hong Kong ( $p < 0.01$ ). Additionally, as H3 expects, mainland state outlets engaged in flooding significantly more than Hong Kong-based state outlets ( $p < 0.05$ ). However, we find no evidence that mainland state outlets engaged in flooding significantly more than their commercialized counterparts. These patterns are consistent with our findings from the previous analysis using the proportion of combined distraction topics as the dependent variable.

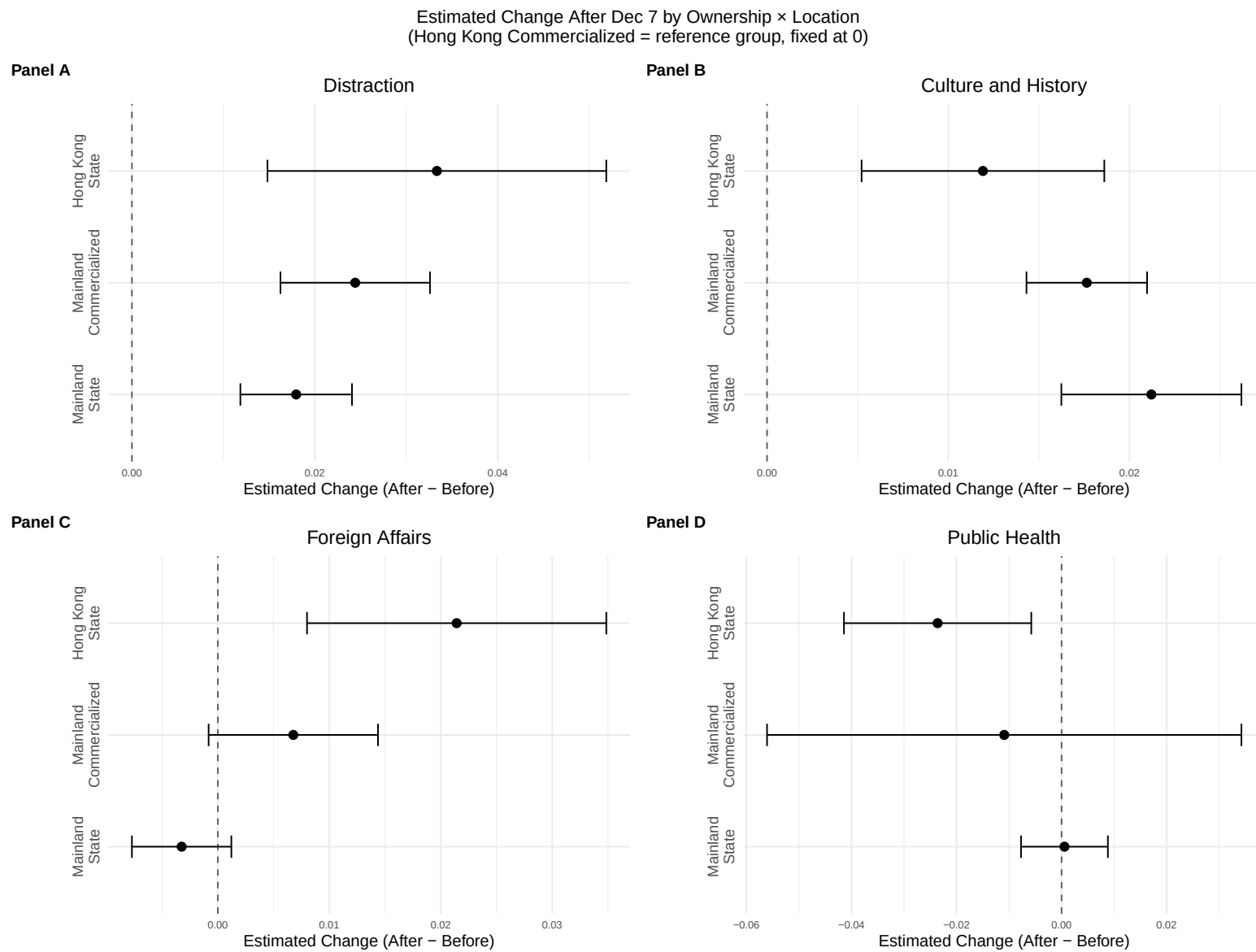


Figure 4: Estimated change before and after policy reversal based on regression analysis

By contrast, Panel C displays no consistent patterns regarding flooding through the coverage of foreign affairs. Relative to the commercialized reference category in Hong Kong, mainland outlets, regardless of ownership type, did not exhibit a significantly higher propensity to cover international news following the policy cancellation. Instead, Appendix Figure 8 reveals that Hong Kong-based state media’s share of foreign affairs coverage significantly increased relative to that of mainland outlets ( $p < 0.01$ ), while mainland commercialized outlets also exhibited a higher propensity to practice flooding through international coverage than their state-owned peers ( $p < 0.05$ ). A reasonable explanation is that the usefulness of foreign affairs as a flooding instrument is subject to the constraint of availability. The autocratic state has control over how much to report on culture and history at a manageable cost, but events beyond the national border happen spontaneously and may not always lend themselves easily to re-framing in the autocrat’s favor.

Finally, Panel D of Figure 4 turns to the proportion of public health topics, an indicator of friction, as the outcome. Only in Hong Kong do we observe a significant difference in the conduct of state and commercialized media ( $p < 0.01$ ), as H1b predicted. The difference between mainland state and commercialized media fails to reach significance, as Appendix Figure 8 demonstrates. Moreover, contrary to the expectation of H3, state media in the mainland published significantly more about public health than their Hong Kong-based counterparts. Taken together, mainland state media did not engage in friction as much as our hypotheses expected.

Taken together, our analysis suggests that, relative to commercialized outlets, state outlets across media environments wrote significantly more about distraction topics, particularly culture and history. There is no significant difference in flooding behavior between mainland state and mainland commercialized media. Meanwhile, we find evidence of friction only in Hong Kong, and the difference between mainland state and commercialized media again fails to reach significance. We tentatively interpret these patterns as a result of the difference in political control between the media environments in the mainland and Hong Kong: commercialized outlets in the mainland face political pressure to converge with their state counterparts, whereas commercialized outlets in Hong Kong still enjoy more latitude.

### 6.3 LLMs, Friction and the use of *qingling*

Yet, the lack of evidence for friction in mainland state media is puzzling. The Zero-COVID policy was a highly salient and controversial topic, and we expected that the Chinese state would have sought to reduce its salience in the media environment. Is it possible that there are limitations in the use of topic modeling for this measurement task? Is it possible that it is not COVID that is subject to friction and censorship, but

the policy itself?

Given the theoretically close relationship between flooding and friction, it is initially puzzling that our findings are consistent with one strategy but not the other. One challenge with using topic models as a measurement method is that topic identification is based on the most associated words, but the meanings of these words may vary across time and context. In this case, while our ‘Public Health’ topic includes mentions of “Zero-COVID,” the framing of this keyword might have differed over time and across media types. Relying on topic models alone might underestimate the degree of friction behavior. Therefore, one relevant question is whether different media actors spoke of “Zero-COVID” for distinct purposes before and after the policy change.

With the assistance of a large language model (LLM), we analyze mentions of the term *qingling*, a phrase that means “clearing to zero” but became closely attached to the Zero-COVID policy during the pandemic, to examine the impact of the policy’s abandonment on its usage. First, we identified thousands of instances where news articles in the dataset used the word *qingling*. Second, after carefully reading several dozen articles, we identified three distinct contexts in which the word had been mentioned: in articles written to describe the Zero-COVID policy (policy); in articles referring to Zero-COVID as background information to discuss something else, such as the future of the Chinese economy (other); and in articles applying the word beyond the context of the pandemic, such as the elimination of poverty or unemployment (repurposed). Finally, we asked two models to identify how the articles in our sample discussed *qingling*: Google’s open-weight Gemma 4 31B, selected for its accuracy and cost-efficiency, and GLM 5.2, a frontier-level China-based open-weight model.<sup>34</sup>

Figure 5 suggests that our null finding regarding friction is consistent with state media’s increased use of *qingling* outside the context of COVID, a strategy that helped to dilute the controversy surrounding the concept. Specifically, after December 7, 2022, state media in the mainland immediately reduced discussion of the Zero-COVID policy while increasingly applying the term *qingling* to topics that were unrelated to the pandemic. State media in Hong Kong behaved similarly to their mainland counterparts, though the change took place more slowly. For mainland-based commercialized media, repurposed use of the term eventually caught up with and outpaced policy-oriented use

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<sup>3</sup>We compared the accuracy of Gemma and GLM with one of the most powerful state-of-the-art closed-source LLM, Claude’s Opus 5, on a sample of 500 articles from our corpus. We also had a human coder evaluate 150 articles to create a gold standard with which the LLMs could be compared against human judgment. We found Gemma 4 31B and GLM 5.2 performed well, accuracy rates for both models for our label of interest of over 96% relative to Opus 5 and 94% with our human coded sample. Our analysis relies primarily on Gemma 4 31B because GLM 5.2, a model developed with China-based training data, could potentially carry a pro-regime bias [35]. Additionally, we found Gemma 4 31B to be the more cost-effective option for researchers who may hope to replicate our results due to its smaller parameter size and very similar performance compared to frontier-model and human benchmarks. Nevertheless, our analysis includes both to emphasize that model selection has little impact on our findings.

<sup>4</sup>The prompt used to produce our results is available in our Appendix.

after December 7, and the change took longer than it did among state media in either location. Finally, in line with our expectations, Hong Kong-based commercialized media demonstrated the least pressure to divert public attention: the Zero-COVID policy remained the primary context in which the outlets used the word *qingling* months after the policy change, while repurposed use of the term increased slowly.<sup>5</sup>

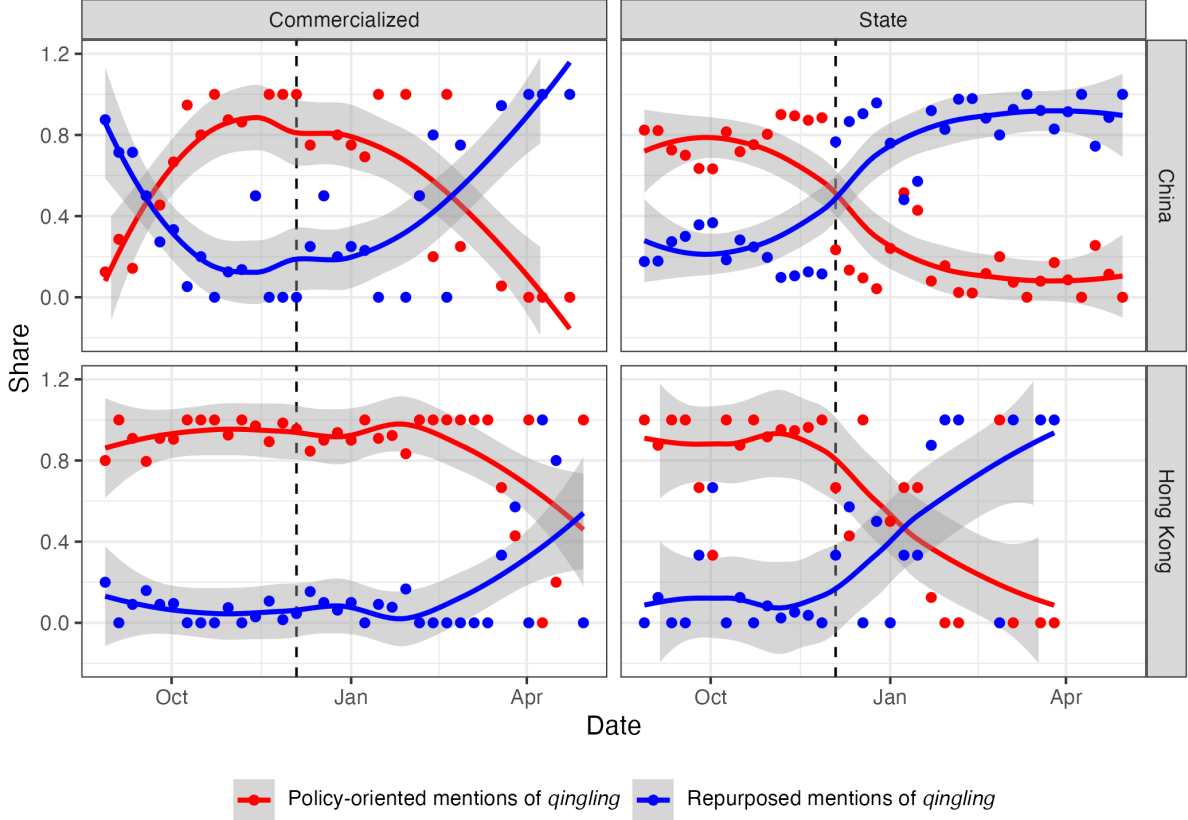


Figure 5: Usage of the keyword *qingling* over time in commercialized and state media in mainland China (top row) and Hong Kong (bottom row), based on Google’s **Gemma 4 31B**. The dashed vertical line marks December 7, 2022, the date of the policy change. Red dots and lines denote references to the term in the specific context of the Zero-COVID policy (“policy”); blue dots and lines denote references outside that context (“repurposed”).

Table 2 displays difference-in-differences analyses of how different media groups discussed the word *qingling* over time. Regardless of which LLM was used, we find that, after the policy change, state media in both locations increased their application of the term to unrelated policy contexts significantly more than Hong Kong-based commercialized media did, with Model 1 showing a 39.4% relative increase in repurposed usages of *qingling* for mainland state media and a corresponding 31.2% increase in the same usage among Hong Kong state media post-policy change. Both of these effects are statistically

<sup>5</sup>Figure 9, which can be found in our Appendix, replicates our analysis with GLM 5.2. The estimates from GLM 5.2 show the same rapid change around the date of December 7th, 2022, indicating that our findings are robust to the use of different LLMs.

significant at a minimum of the 0.05 level. The difference between commercialized outlets in the two locations, however, fails to reach significance. Simultaneously, our pairwise comparisons detect a significant difference between the behavior of commercialized and state media in mainland China ( $p < 0.001$ ), with state outlets shifting more sharply, but not between that of state media in the two locations. Taken together, our findings provide strong evidence of parallel engagement in friction among state-run outlets.

Table 2: Diff-in-Diff Analysis of Type of Reference to *qingling*: Policy vs Repurposed

|                         | Gemma-4 31B         |                      | GLM 5.2             |                      |
|-------------------------|---------------------|----------------------|---------------------|----------------------|
|                         | (1) Repurposed      | (2) Policy           | (3) Repurposed      | (4) Policy           |
| Hong Kong State         | 0.312**<br>(0.150)  | -0.347**<br>(0.141)  | 0.326**<br>(0.147)  | -0.253**<br>(0.106)  |
| Mainland Commercialized | -0.043<br>(0.117)   | 0.053<br>(0.128)     | 0.067<br>(0.046)    | 0.066<br>(0.082)     |
| Mainland State          | 0.394***<br>(0.026) | -0.400***<br>(0.027) | 0.407***<br>(0.026) | -0.233***<br>(0.038) |
| <i>Statistics</i>       |                     |                      |                     |                      |
| R Squared               | 0.61                | 0.61                 | 0.62                | 0.59                 |
| Observations            | 1226                | 1226                 | 1226                | 1226                 |

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Coefficients indicate differences-in-differences relative to Hong Kong-based commercialized media. Unit of analysis is publication-week. Standard errors are clustered at the outlet level.

## 6.4 Alternate specifications

In our robustness checks, we examine whether the Chinese New Year confounds the observed relationship between the Zero-COVID policy change and coverage of historical and cultural events. We conduct this check because the Chinese New Year, a prominent cultural event, took place in January 2023, after the Zero-COVID policy shift. In particular, the State Council designated the week between January 21st and 27th as an official holiday period, during which discussions of culture and history naturally increased. We reran our analysis with this period and adjacent weeks excluded and find no meaningful change in the coefficient estimates (see Appendix Tables 6-7). In summary, our robustness check fails to find evidence that the Chinese New Year confounds our findings.

The linguistic difference between Mandarin Chinese and Cantonese poses another potential challenge to our measurement of topic proportions. As a robustness check, we applied structural topic modeling separately to media outlets in the mainland and Hong Kong, verified the topic labels by hand, categorized the labels into topic groups in accordance with the same rules as our original analysis<sup>6</sup>, and generated a combined

<sup>6</sup>We present our coding rules for the original STM in Appendix Table 4.

dataset for analysis. Appendix Table 8 suggests that our original findings are generally robust to the change in topic modeling, with two exceptions. First, following the policy change, mainland state media curtailed foreign affairs coverage significantly more than Hong Kong commercialized media ( $p < 0.05$ ). The magnitude of this effect, however, is close to 0. Second, mainland state media significantly increased public health coverage relative to the Hong Kong reference group ( $p < 0.05$ ), a pattern inconsistent with H1b, even though the analysis reveals evidence of friction behavior among Hong Kong state media, a result in line with the hypothesis.

## 6.5 Event Study

Our analysis thus far has relied on a difference-in-differences design that compares behavior across outlets pre and post the abandonment of the Zero-COVID policy. However, one risk to this identification strategy is the potential existence of parallel trends in pre-treatment periods. Accordingly, we conduct an event study for the core regressions shown in Figure 4 and in Table 2. In particular, we examine the dynamics of the treatment effect by evaluating our difference-in-differences model at 10 time periods before and after our treatment event. We define the treatment event as the week of December 7, 2022, the date the Chinese government abandoned the Zero-COVID policy, with the week before serving as the omitted reference period. We then estimate the series of regression equations represented by Equation 3, where  $K$  refers to the weeks before and after the treatment event,  $P$  is the treated period and the remaining parameters are the same as those in Equation 2.

$$Y_{it} \sim \sum_{\substack{k=-K \\ k \neq -1}}^K \beta_k^{MS} P_{t=k} \times MS_i + \sum_{\substack{k=-K \\ k \neq -1}}^K \beta_k^{MC} P_{t=k} \times MC_i + \sum_{\substack{k=-K \\ k \neq -1}}^K \beta_k^{HS} P_{t=k} \times HS_i + \gamma_i + \theta_t + \epsilon_{it} \quad (3)$$

The results, shown in Figure 6, suggest that the parallel trends assumption is largely satisfied. Panel A shows results consistent with our prior analysis, with Hong Kong state media showing a persistent decline in coverage of the topic after the December 7th policy change, while other publication types show no such consistent change. For Hong Kong state media, the pre-periods appear to have a visual, though statistically insignificant positive trend in the topic; however, given that this trend lies in the opposite direction of our expected treatment effect and it does not reach statistical significance, we do not see it as a threat to our identification strategy.

In Panel B, we examine the impact of our treatment across media types with the Culture and History topic as the dependent variable. Across the three media categories, we see a gradual increase in the topic in periods following the treatment date, with a

notable spike in weeks in January corresponding to the Chinese New Year, though as we see with our robustness checks and in this figure, the observed treatment effect is not driven entirely by this event. None of the media groups exhibit a statistically or visually noteworthy pre-treatment trend, suggesting that the parallel trends assumption is satisfied.

The remaining two panels C and D represent the impact of our treatment period on the proportion of mentions of Zero-COVID in each period that refer to the policy or are repurposed to discuss matters other than Zero-COVID. For our LLM analysis, we see an immediate and persistent impact of the policy change on the proportion of policy mentions and that of repurposed mentions in the opposite direction for both mainland and Hong Kong state media. This effect persists for all ten weeks following the policy change that we included in our event study for these state outlets. The pre-trend periods exhibit no trend in either direction prior to the policy change, further indicating that pre-trends are not biasing our analysis.

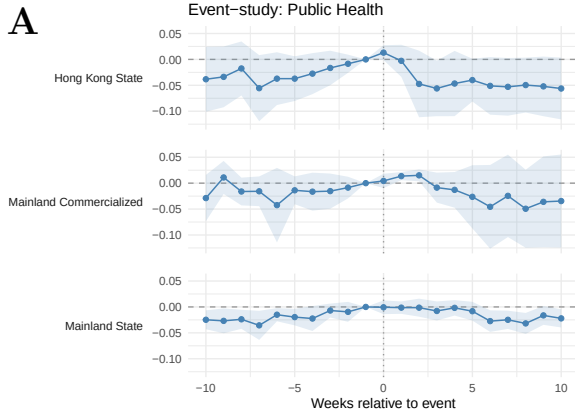
In sum, our event studies lend support for our key findings, with no obvious pre-trends making an appearance for any of our empirical results. This strengthens a potential causal interpretation of the observed impacts of the Zero-COVID policy change on behavioral changes in state-affiliated media outlets, particularly in how they referred to Zero-COVID.

## 7 Conclusion

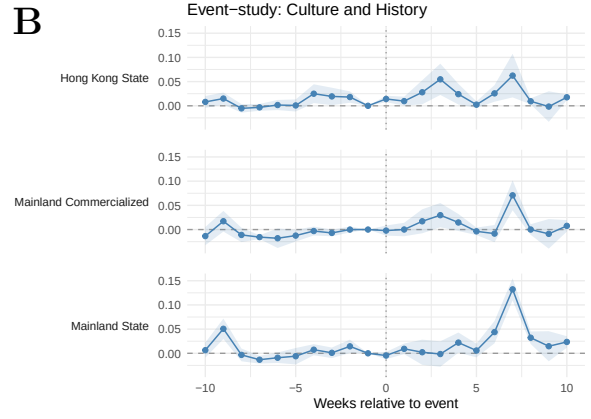
Utilizing a large dataset of Chinese and Hong Kong publications that cover the end of 2022 and the start of 2023, we undertook a difference-in-differences analysis to see how coverage of topics (determined by a structural topic model) varied during a period of political and public health crisis across media environments and across state and commercialized outlets. We also examined how the term *qingling*, a phrase closely associated with the unpopular Zero-COVID policy, was used in different contexts before and after the policy change.

Overall, we find that state-affiliated media outlets in Hong Kong and the mainland generally increased their coverage of irrelevant material during the period of protest and epidemic crisis in a manner consistent with flooding. Even in Hong Kong, where media outlets face significant international competition, state outlets practiced flooding in a manner similar to their counterparts on the mainland. Mainland Chinese outlets overall also engaged in higher levels of flooding than Hong Kong commercialized media, most commonly through greater coverage of culture and history topics, perhaps due to its relative ease of production, and not through negative coverage of foreign affairs as prior research might suggest was likely [10, 8, 11, 12, 13].

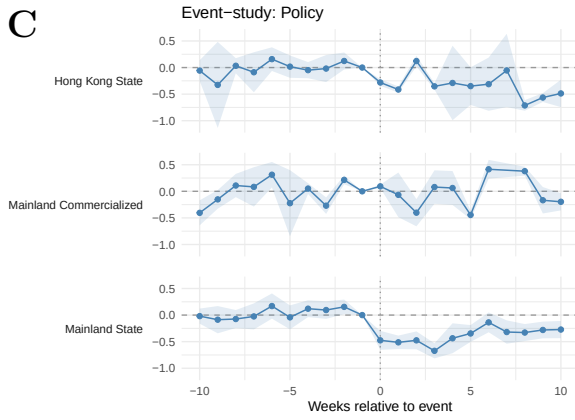
Evidence for friction was more dependent on the methodology used. We do not find evidence that state media in the mainland, relative to our benchmark or other



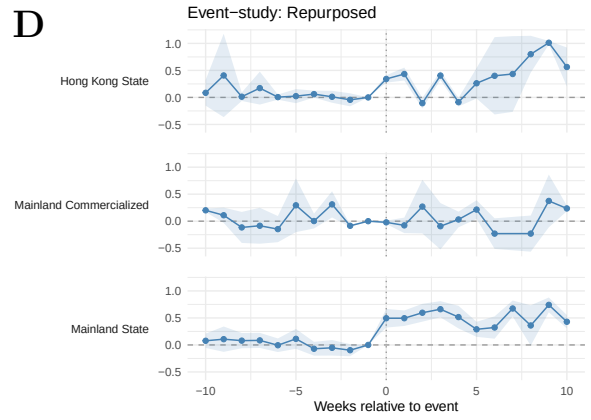
(a) Topic: Public Health



(b) Topic: Culture and History



(c) LLM: Policy



(d) LLM: Repurposed

Figure 6: Event study estimates

groups, saw a significant reduction in its general usage of public health-related terms after December 7, 2022. However, a closer examination of the text data suggests that state media outlets increasingly repurposed *qingling* (clearing to zero), a term most closely attached to the unpopular policy, for topics unrelated to the pandemic, such as the elimination of poverty and pollution. This change suggests that, in our analysis of topic proportions, structural topic modeling might have overestimated the prevalence of ‘Public Health’ and underestimated the degree of friction due to its reliance on corpus-wide co-occurrence between keywords.

There is a limit to the generalizability of our findings. As a result of state regulations, only two mainland outlets with available data meet our definition of commercialized media. The number of commercialized outlets in Hong Kong is likewise small because of the limited size of their media market. Future research could build on our work by including a more diverse sample of outlets or looking beyond the Chinese context. Either strategy could allow for a more comprehensive and generalizable analysis.

Overall, this paper advances our understanding of how authoritarian regimes exploit their influence over media environments during periods of crisis. We also enrich the literature on authoritarian media [36, 14] by examining how flooding and friction behavior varies along two dimensions: the degree of state control in a given media market and the degree of commercialization of individual outlets.

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This study required no external funding beyond the authors’ personal resources.

## Data Availability

The data that we use to produce the findings of this study are freely available in OSF at [https://osf.io/x6tnd/?view\\_only=99c98caa353b428ab97bd4a8dea2b495](https://osf.io/x6tnd/?view_only=99c98caa353b428ab97bd4a8dea2b495), with the Globally Unique Identifier (GUID) of x6tnd.

## Declarations

**Ethics Approval and Consent to Participate.** This research did not involve human subjects and therefore did not require ethical approval or informed consent.

**Consent for Publication.** Not applicable.

**Conflict of Interest.** The authors have no professional, financial, contractual, or personal relationships that could be perceived to impact this research.

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Table 3: Publication List and Basis for Ownership Classification

| English Name                              | Chinese Name | N     | Basis for classification                                                                                                                                                         |
|-------------------------------------------|--------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mainland State</b>                     |              |       |                                                                                                                                                                                  |
| 21st Century Business Herald              | 21 世纪经济报道    | 4200  | Owned by the state-owned Southern Finance Omnimedia,; newsroom unlisted.                                                                                                         |
| Beijing Business Daily                    | 北京商报         | 4068  | Owned by the state-owned Beijing Daily Group; unlisted.                                                                                                                          |
| Beijing Daily                             | 京报网          | 55577 | Municipal CCP committee organ; newsroom unlisted.                                                                                                                                |
| Beijing Development and Construction News | 首都建设报        | 1677  | Affiliated with Beijing Municipal State-owned Assets Supervision and Administration Commission; newsroom unlisted.                                                               |
| Changchun Daily                           | 长春日报         | 8927  | Municipal CCP committee organ; newsroom unlisted.                                                                                                                                |
| Chengdu Daily                             | 成都日报         | 9982  | Municipal CCP committee organ; advertising rights held by listed Bomei (SSE 600880); newsroom unlisted.                                                                          |
| Chengdu Economic Daily                    | 成都商报         | 8296  | Affiliated with Chengdu Municipal State-owned Assets Supervision and Administration Commission; commercial operations performed by listed Bomei (SSE 600880); newsroom unlisted. |
| China City News                           | 中国城市报        | 1382  | Supervised by People's Daily; unlisted.                                                                                                                                          |
| China Daily                               | 中国日报         | 18695 | Owned by the CCP Central Propaganda Department; newsroom unlisted.                                                                                                               |
| China Energy News                         | 中国能源报        | 2104  | Supervised by People's Daily; organ of the National Energy Administration; newsroom unlisted.                                                                                    |
| China Youth Daily                         | 中国青年报        | 6609  | Organ of the Communist Youth League Central Committee; newsroom unlisted.                                                                                                        |
| Chongqing Daily                           | 重庆日报         | 6710  | Municipal CCP committee organ; newsroom unlisted.                                                                                                                                |
| Chongqing Evening News                    | 重庆晚报         | 1749  | Metro paper under the state-owned Chongqing Daily Press Group; newsroom unlisted.                                                                                                |
| Chutian Metropolis Daily                  | 楚天都市报        | 25400 | Metro tabloid under the state-owned Hubei Daily Media Group; unlisted.                                                                                                           |
| Dahe Daily                                | 大河报          | 443   | Metro tabloid under the state-owned Henan Daily Press Group; unlisted.                                                                                                           |
| Dalian Daily                              | 大连日报         | 4628  | Municipal CCP committee organ; newsroom unlisted.                                                                                                                                |
| Dazhong Daily                             | 大众日报         | 11529 | Provincial CCP committee organ; newsroom unlisted.                                                                                                                               |
| Economic Daily                            | 经济日报         | 9747  | Supervised by the CCP Central Propaganda Department; newsroom unlisted.                                                                                                          |
| Everyday News                             | 每日新报         | 5927  | Metro paper under the state-owned Tianjin Daily Media Group; unlisted.                                                                                                           |
| Fujian Daily                              | 福建日报         | 12378 | Provincial CCP committee organ; newsroom unlisted.                                                                                                                               |
| Fuzhou Daily                              | 福州日报         | 9578  | Municipal CCP committee organ; newsroom unlisted.                                                                                                                                |

(continued on next page)

Table 3: Publication List (continued)

| English Name                   | Chinese Name | N     | Basis for classification                                                                       |
|--------------------------------|--------------|-------|------------------------------------------------------------------------------------------------|
| Fuzhou Evening News            | 福州晚报         | 6726  | Metro paper under the state-owned Fuzhou Daily Press Group; newsroom unlisted.                 |
| Global Times                   | 环球日报         | 37073 | Supervised by the People's Daily; newsroom unlisted.                                           |
| Guangming Daily                | 光明日报         | 74371 | Supervised by the CCP Central Propaganda Department; newsroom unlisted.                        |
| Hainan Daily                   | 海南日报         | 17071 | Provincial CCP committee organ; newsroom unlisted.                                             |
| Heilongjiang Daily             | 黑龙江日报        | 9225  | Provincial CCP committee organ; newsroom unlisted.                                             |
| Henan Daily                    | 河南日报         | 10823 | Provincial CCP Committee organ; newsroom unlisted.                                             |
| Hengyang Daily                 | 衡阳日报         | 7606  | Municipal CCP committee organ; newsroom unlisted.                                              |
| Hubei Daily                    | 湖北日报         | 13163 | Provincial CCP committee organ; newsroom unlisted.                                             |
| International Financial News   | 国际金融报        | 1014  | Supervised by People's Daily; newsroom unlisted.                                               |
| Jiangxi Daily                  | 江西日报         | 12228 | Provincial CCP committee organ; newsroom unlisted.                                             |
| Lanzhou Daily                  | 兰州日报         | 8647  | Municipal CCP committee organ; newsroom unlisted.                                              |
| Legal Daily                    | 法制日报         | 6927  | Organ of the Ministry of Justice; newsroom unlisted.                                           |
| Liaoning Daily                 | 辽宁日报         | 11563 | Provincial CCP committee organ; newsroom unlisted.                                             |
| Nanjing Daily                  | 南京日报         | 9942  | Municipal CCP committee organ; newsroom unlisted.                                              |
| Neimenggu Daily                | 内蒙古日报        | 9831  | Autonomous-region CCP committee organ; newsroom unlisted.                                      |
| People's Liberation Army Daily | 解放军报         | 10589 | Organ of the CCP Central Military Commission; newsroom unlisted.                               |
| Procuratorate Daily            | 检察日报         | 8248  | Organ of the Supreme People's Procuratorate; newsroom unlisted.                                |
| Qinghai Daily                  | 青海日报         | 4335  | Provincial CCP committee organ; newsroom unlisted.                                             |
| Science and Technology Daily   | 科技日报         | 6836  | Organ of the Ministry of Science and Technology; newsroom unlisted.                            |
| Shangqiu Daily                 | 商丘日报         | 6752  | Municipal CCP committee organ; newsroom unlisted.                                              |
| The Beijing News               | 新京报          | 2112  | Supervised by the Beijing municipal CCP committee; newsroom unlisted.                          |
| The People's Daily             | 人民网          | 14582 | Directly listed (SSE 603000) <i>but</i> majority state-owned and controlled by People's Daily. |
| West China City Daily          | 华西都市报        | 11734 | Metro tabloid under the state-owned Sichuan Daily Press Group; newsroom unlisted.              |
| Workers' Afternoon News        | 劳动午报         | 8646  | Organ of the Beijing Federation of Trade Unions; newsroom unlisted.                            |
| Workers' Daily                 | 工人日报         | 10155 | Organ of the All-China Federation of Trade Unions; newsroom unlisted.                          |
| Xinhua                         | 新华网          | 40435 | Directly listed (SSE 603888) <i>but</i> controlled by Xinhua News Agency.                      |

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Table 3: Publication List (continued)

| English Name                    | Chinese Name | N     | Basis for classification                                                                                                                                                    |
|---------------------------------|--------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Xinmin                          | 新民网          | 28095 | Owned by Shanghai United Media Group, which is itself state-owned; listed affiliate Xinhua Media (SSE 600825) handles distribution and advertising only; newsroom unlisted. |
| Yangcheng Evening News          | 金羊网          | 21261 | Owned by a provincial state media group; newsroom unlisted.                                                                                                                 |
| Yangtse Evening News            | 扬子晚报         | 227   | Owned by a provincial state media group; newsroom unlisted.                                                                                                                 |
| Zhejiang Daily                  | 浙江日报         | 16348 | Provincial CCP committee organ; commercial assets separately listed (SSE 600633); newsroom unlisted.                                                                        |
| Zhongwei Daily                  | 中卫日报         | 6801  | Municipal CCP committee organ; newsroom unlisted.                                                                                                                           |
| <b>Mainland Commercialized</b>  |              |       |                                                                                                                                                                             |
| Caijing                         | 财经           | 23820 | Privately owned; parent SEEC Media is HKEX-listed (0205).                                                                                                                   |
| Caixin                          | 财新           | 15376 | Privately owned; newsroom unlisted.                                                                                                                                         |
| <b>Hong Kong State</b>          |              |       |                                                                                                                                                                             |
| Hong Kong Commercial Daily      | 香港商报         | 15104 | Partially owned by Shenzhen Press Group that is under the Shenzhen Party Committee's supervision; newsroom unlisted.                                                        |
| Ta Kung Pao                     | 大公网          | 11192 | Historically under the CCP's direct supervision and currently owned by Ta Kung Wen Wei Media Group; newsroom unlisted.                                                      |
| Wenweipo                        | 文汇报          | 11078 | Historically under the CCP's direct supervision and currently owned by Ta Kung Wen Wei Media Group; newsroom unlisted.                                                      |
| <b>Hong Kong Commercialized</b> |              |       |                                                                                                                                                                             |
| Ming Pao                        | 明報           | 8558  | Privately owned; parent Media Chinese International publicly traded (HKEX 685).                                                                                             |
| Sing Tao Daily                  | 星岛日报         | 35837 | Privately owned; parent Sing Tao News Corporation publicly traded (HKEX 1105).                                                                                              |

Notes: Outlets are coded *commercialized* when the newsroom itself lies outside state ownership and is exposed to market incentives, and *state* otherwise. Classification follows the two-track structure of Chinese press groups, in which the newsroom remains a Party-controlled public institution even where commercial functions are floated separately. For smaller municipal dailies, classification rests on the near-universal institutional pattern rather than outlet-specific sources.

Table 4: Topic Group and Most Frequent Words

| Topic | Label                      | Most Frequent Words                     | Topic Group         |
|-------|----------------------------|-----------------------------------------|---------------------|
| 1     | COVID-19 Diagnosis         | 例, 病例, 确诊, 新增, 输入, 检测, 区, 诊断, 发现, 累计    | Public Health       |
| 2     | Family Relationships       | 里, 孩子, 做, 更, 工作, 想, 生活, 中, 没, 岁         | Livelihood          |
| 3     | Innovation and Technology  | 创新, 科技, 技术, 研发, 发展, 领域, 国家, 成果, 企业, 科研  | Science             |
| 4     | Culture and Tradition      | 文化, 中, 传统, 历史, 阅读, 精神, 中华, 文明, 生活, 文学   | Culture and History |
| 5     | Employment Standards       | 工作, 规定, 单位, 申请, 岗位, 相关, 部门, 招聘, 保障, 劳动  | Economy             |
| 6     | National People's Congress | 代表, 委员, 中央, 工作, 届, 政协, 民主, 全国, 全, 国     | Party and Politics  |
| 7     | Fujian News                | 福州, 福建, 字, 福建省, 共, 全文, 福州市, 厦门, 闽, 福建日报 | Other               |
| 8     | Safety Inspection          | 安全, 应急, 车辆, 交通, 消防, 进行, 工作, 垃圾, 检查, 生产  | Other               |
| 9     | Governance and Services    | 工作, 服务, 群众, 问题, 治理, 机制, 市, 部门, 解决, 基层   | Livelihood          |
| 10    | News Release Event         | 月, 日, 新华社, 北京, 举行, 发布, 新闻, 正式, 日电, 活动   | Other               |
| 11    | Medical Treatment          | 治疗, 疾病, 症状, 出现, 药物, 感染, 中, 健康, 进行, 建议   | Public Health       |
| 12    | Agricultural Production    | 农业, 粮食, 种植, 生产, 农民, 农产品, 农村, 亩, 品种, 技术  | Economy             |

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Table 4: Topic Group and Most Frequent Words (*continued*)

| Topic | Label                       | Most Frequent Words                                 | Topic Group         |
|-------|-----------------------------|-----------------------------------------------------|---------------------|
| 13    | Finance                     | 金融, 银行, 贷款, 资金, 支持, 融资, 住房, 机构, 风险, 利率              | Economy             |
| 14    | Space Exploration           | 卫星, 发射, 火箭, 探测, 太阳, 号, 月球, 观测, 太空, 北斗               | Science             |
| 15    | Travel and Tourism          | 旅游, 消费, 游客, 文化, 活动, 景区, 春节, 体验, 酒店, 旅               | Culture and History |
| 16    | Chinese Names               | 王, 女, 李, 张, 刘, 陈, 杨, 吴, 赵, 林                        | Other               |
| 17    | International Relations     | 合作, 发展, 国际, 推动, 中, 世界, 全球, 关系, 倡议, 国家               | Foreign Affairs     |
| 18    | Hong Kong Macau Cooperation | 香港, 澳门, 澳, 於, 深圳, 区, 表示, 港, 政府, 发展                  | Other               |
| 19    | Business Operations         | 公司, 集团, 公告, 股份, 元, 员工, 业务, 号, 股东, 万元                | Economy             |
| 20    | Sports                      | 体育, 运动, 赛事, 冰雪, 选手, 项目, 中, 参赛, 健身, 赛                | Other               |
| 21    | Investment Funds            | 基金, 投资, 市场, 产品, 保险, 资产, 公司, 业务, 发行, 证券              | Economy             |
| 22    | Internet Crime Reporting    | 网络, 信息, 相关, 违法, 进行, 举报, 诈骗, 平台, 违规, 财               | Other               |
| 23    | English Words               | com, article, huanqiu, a, b, world, c, china, 环球, d | Other               |
| 24    | Chinese Poetry and Art      | 中, 里, 诗, 花, 山, 种, 出, 便, 树, 字                        | Culture and History |
| 25    | Community Service           | 活动, 服务, 组织, 社区, 宣传, 职工, 工作, 党建, 群众, 党员              | Party and Politics  |
| 26    | Soccer World Cup            | 世界杯, 足球, 队, 中, 球员, 球队, 球迷, 联赛, 俱乐部, 分               | Other               |

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Table 4: Topic Group and Most Frequent Words (*continued*)

| Topic | Label                     | Most Frequent Words                                     | Topic Group        |
|-------|---------------------------|---------------------------------------------------------|--------------------|
| 27    | Party spirit education    | 党, 工作, 精神, 学习, 贯彻, 思想, 习近平, 落实, 新, 全面                   | Party and Politics |
| 28    | Economy and Finance       | 市场, 价格, 美元, 月, 预期, 点, 影响, 政策, 通胀, 指数                    | Economy            |
| 29    | Environmental Protection  | 生态, 保护, 环境, 水, 黄河, 长江, 国家, 公园, 修复, 绿色                   | Environment        |
| 30    | Chinese Medicine Industry | com, huanqiu, article, 长春, 电子, cn, 青岛, 消, 烟, huanqiucdn | Other              |
| 31    | Intellectual Property     | 北京, 版权, 请, 编辑, 文章, 联系, 相关, 流程, 侵权, 作品                   | Other              |
| 32    | Rural Revitalization      | 乡村, 村, 振兴, 村民, 农村, 镇, 发展, 产业, 县, 脱贫                     | Economy            |
| 33    | European Countries        | 英国, 欧洲, 法国, 德国, 印度, 泰国, 表示, 新加坡, 龙, 马克                  | Foreign Affairs    |
| 34    | Global Development        | 中国, 世界, 国际, 全球, 发展, 国家, 更, 表示, 进, 机遇                    | Foreign Affairs    |
| 35    | Media Platform            | 视频, 媒体, 直播, 平台, 新闻, 网, 网友, 游戏, 传播, 关注                   | Other              |
| 36    | Healthcare Services       | 医疗, 医院, 健康, 服务, 养老, 卫生, 机构, 医保, 中心, 医生                  | Public Health      |
| 37    | Spacecraft Construction   | 号, 神舟, 船, 太空, 完成, 飞船, 中国, 舱, 船舶, 工作                     | Science            |
| 38    | Law Enforcement           | 法律, 检察, 法治, 案件, 法院, 司法, 机关, 行政, 检察院, 犯罪                 | Party and Politics |
| 39    | Brand Marketing Strategy  | 品牌, 产品, 更, 市场, 体验, 系列, 消费, 家居, 手机, 需求                   | Economy            |
| 40    | Science Research Team     | 研究, 中, 团队, 科学, 发现, 技术, 生物, 问题, 进行, 种                    | Science            |

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Table 4: Topic Group and Most Frequent Words (*continued*)

| Topic | Label                   | Most Frequent Words                      | Topic Group         |
|-------|-------------------------|------------------------------------------|---------------------|
| 41    | Education and Teaching  | 教育, 学生, 学校, 专业, 学习, 职业, 教师, 培养, 学院, 培训   | Livelihood          |
| 42    | Markets and Goods       | 市场, 元, 销售, 价格, 产品, 食品, 商品, 药品, 电商, 购买    | Economy             |
| 43    | Transportation Services | 铁路, 旅客, 物流, 运输, 快递, 机场, 列车, 站, 出行, 高铁    | Other               |
| 44    | Political Discipline    | 监督, 问题, 干部, 党, 政治, 中央, 领导, 工作, 组织, 腐败    | Party and Politics  |
| 45    | Green Energy Production | 绿色, 碳, 生产, 公司, 电力, 技术, 工业, 吨, 实现, 低      | Economy             |
| 46    | Economic Development    | 产业, 发展, 项目, 区, 全, 推动, 投资, 推进, 加快, 元      | Economy             |
| 47    | Revolutionary Heroism   | 精神, 中, 红色, 革命, 英雄, 奋斗, 祖国, 雷锋, 青春, 力量    | Defense             |
| 48    | World Cup               | 分, 世界, 场, 球队, 球, 球员, 赛, 表现, 於            | Other               |
| 49    | Arts and Culture        | 文化, 艺术, 活动, 作品, 传统, 演出, 音乐, 观众, 展览, 主题   | Culture and History |
| 50    | Construction            | 项目, 工程, 施工, 交通, 完成, 建筑, 公里, 高速, 公路, 建成   | Economy             |
| 51    | Province Rescue Efforts | 浙江, 四川, 山东, 江苏, 杭州, 江西, 广西, 四川省, 浙江省, 救援 | Other               |
| 52    | Business Development    | 企业, 政策, 市场, 服务, 发展, 环境, 支持, 民营, 营商, 优化   | Economy             |
| 53    | Hong Kong News          | 於, 约, 指, 香港, 星岛, 推出, 表示, https, 宗, bit   | Other               |
| 54    | American Politics       | 美国, 报道, 政府, 中, 问题, 韩国, 称, 国家, 政治, 事件     | Foreign Affairs     |

*(Continued on Next Page...)*

Table 4: Topic Group and Most Frequent Words (*continued*)

| Topic | Label                        | Most Frequent Words                         | Topic Group         |
|-------|------------------------------|---------------------------------------------|---------------------|
| 55    | Economy                      | 万, 全, 两, 三, 次, 国, 元, 家, 高, 首                | Other               |
| 56    | Military Training            | 训练, 飞机, 作战, 军事, 部队, 海军, 军队, 飞行, 国防, 装备      | Defense             |
| 57    | Economic Growth              | 增长, 亿元, 占, 消费, 收入, 显示, 亿, 投资, 规模, 持续        | Economy             |
| 58    | Taiwan News                  | 请, 台湾, 听, 规范, 新闻, 隐私权, 中央社, 表示, 於, 编辑       | Other               |
| 59    | National Development         | 发展, 体系, 推进, 推动, 改革, 国家, 加快, 保障, 加强, 完善      | Economy             |
| 60    | Digital Transformation       | 数字, 技术, 服务, 数字化, 平台, 智慧, 互联网, 实现, 信息, 发展    | Science             |
| 61    | Climate change               | 影响, 新疆, 气温, 级, 部分, 北部, 东部, 出现, 南部, 青海       | Other               |
| 62    | Urban Development            | 城市, 社区, 居民, 街道, 改造, 市民, 生活, 公园, 区, 中心       | Livelihood          |
| 63    | International Relations      | 俄罗斯, 乌克兰, 俄, 表示, 欧盟, 报道, 国家, 称, 乌, 伊朗       | Foreign Affairs     |
| 64    | Chongqing Development Center | 新, 重庆, 正, 通道, 更, 重庆市, 西部, 川, 发展, 渝          | Economy             |
| 65    | Police Investigation         | 发生, 名, 发现, 民警, 调查, 岁, 男子, 现场, 事件, 中         | Livelihood          |
| 66    | Guangdong Province           | 海南, 广州, 广东, 茶, 广东省, 海洋, 港, 海口, 广州市, 海南省     | Other               |
| 67    | Food and Dining              | 吃, 菜, 食品, 美食, 咖啡, 预制, 食物, 餐饮, 餐厅, 中         | Culture and History |
| 68    | Hubei Pandemic               | 摄, 湖北, 武汉, 新华社, 湖北日报, 荆楚网, 湖北省, 网, 通讯员, 武汉市 | Other               |

*(Continued on Next Page...)*

Table 4: Topic Group and Most Frequent Words (*continued*)

| Topic | Label                         | Most Frequent Words                     | Topic Group         |
|-------|-------------------------------|-----------------------------------------|---------------------|
| 69    | Chinese Communist Party       | 中国, 党, 新, 现代化, 习近平, 发展, 全面, 坚持, 国家, 民族  | Party and Politics  |
| 70    | Film Industry                 | 电影, 中, 观众, 作品, 演员, 导演, 创作, 女性, 影片, 角色   | Culture and History |
| 71    | Cross-Strait Relations        | 台湾, 中国, 问题, 表示, 安全, 两岸, 美, 国, 国家, 政治    | Foreign Affairs     |
| 72    | Hong Kong News                | 网, 网民, 唔, 於, 更, 岁, 麽, 做, 睇              | Other               |
| 73    | Epidemic control measures     | 疫情, 防控, 检测, 疫苗, 措施, 核酸, 接种, 感染, 防疫, 风险  | Public Health       |
| 74    | Electric Vehicle              | 汽车, 电池, 车, 市场, 充电, 电动, 驾驶, 车型, 产品, 芯片   | Science             |
| 75    | Cultural Heritage             | 博物馆, 文物, 文化, 历史, 保护, 考古, 遗址, 发现, 建筑, 遗产 | Culture and History |
| 76    | China-International Relations | 习近平, 主席, 国家, 中, 中国, 关系, 两, 表示, 国, 中共    | Foreign Affairs     |

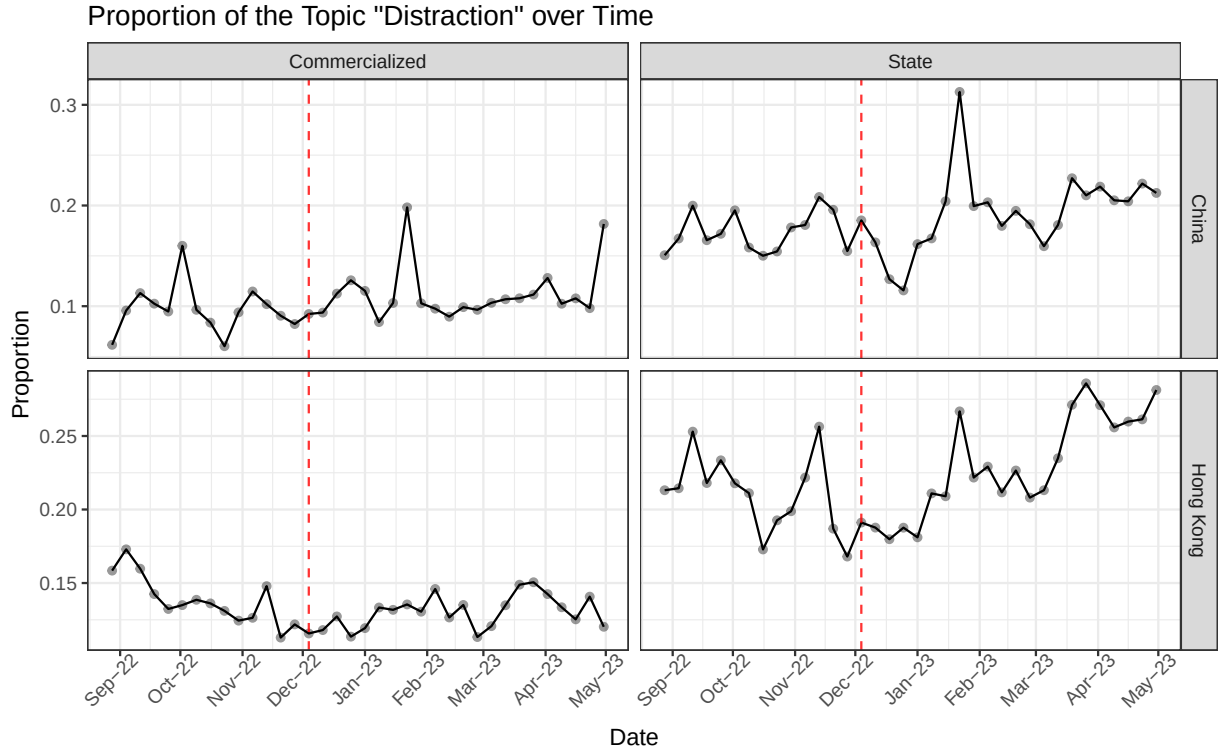


Figure 7: Combined proportion of potential distraction topics over time in commercialized and state media, in mainland China (top row) and Hong Kong (bottom row). The red dotted line marks the end of Zero-COVID.

Table 5: Regression Analysis

|                         | Flooding            |                     |                     | Friction            |
|-------------------------|---------------------|---------------------|---------------------|---------------------|
|                         | Distraction         | Culture and History | Foreign Affairs     | Public Health       |
| Hong Kong State         | 0.033***<br>(0.009) | 0.012***<br>(0.003) | 0.021***<br>(0.007) | -0.024**<br>(0.009) |
| Mainland Commercialized | 0.024***<br>(0.004) | 0.018***<br>(0.002) | 0.007*<br>(0.004)   | -0.011<br>(0.023)   |
| Mainland State          | 0.018***<br>(0.003) | 0.021***<br>(0.002) | -0.003<br>(0.002)   | 0.001<br>(0.004)    |
| <i>Statistics</i>       |                     |                     |                     |                     |
| R Squared               | 0.73                | 0.75                | 0.80                | 0.54                |
| Observations            | 1991                | 1991                | 1991                | 1991                |

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ . Coefficients indicate differences-in-differences relative to Hong Kong-based commercialized media. Unit of analysis is publication-week. Standard errors are clustered at the outlet level.

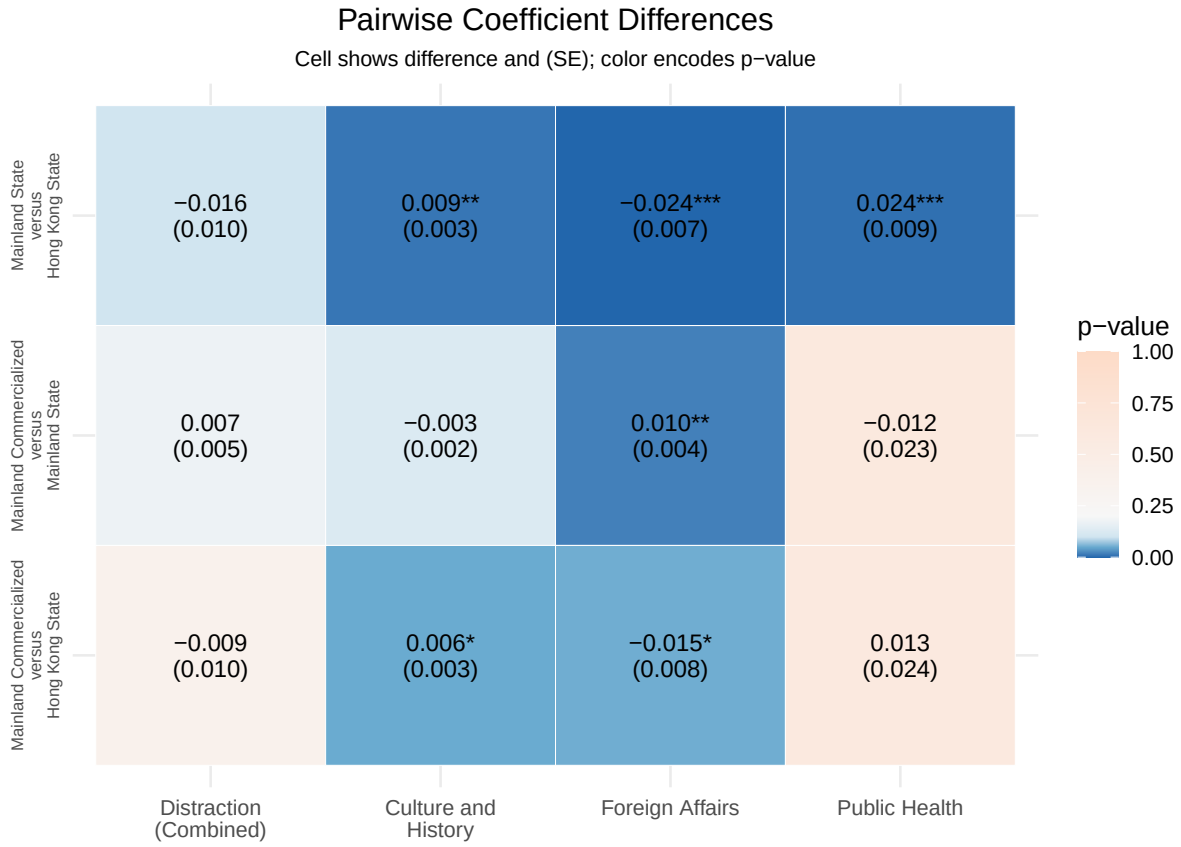


Figure 8: Pairwise comparisons of regression coefficients from Table 5. Each cell reports the difference between two coefficients, its standard error (in parentheses), and significance stars. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Table 6: Regression Analysis Excluding the Two Weeks of Spring Festival

|                         | Flooding            |                     |                     | Friction            |
|-------------------------|---------------------|---------------------|---------------------|---------------------|
|                         | Distraction         | Culture and History | Foreign Affairs     | Public Health       |
| Hong Kong State         | 0.033***<br>(0.009) | 0.009***<br>(0.003) | 0.024***<br>(0.008) | -0.024**<br>(0.009) |
| Mainland Commercialized | 0.021***<br>(0.005) | 0.015***<br>(0.002) | 0.005<br>(0.004)    | -0.010<br>(0.022)   |
| Mainland State          | 0.011***<br>(0.003) | 0.015***<br>(0.003) | -0.004<br>(0.002)   | 0.001<br>(0.004)    |
| <i>Statistics</i>       |                     |                     |                     |                     |
| R Squared               | 0.74                | 0.76                | 0.80                | 0.54                |
| Observations            | 1889                | 1889                | 1889                | 1889                |

Notes: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01. Coefficients indicate differences-in-differences relative to Hong Kong-based commercialized media. Unit of analysis is publication-week. Standard errors are clustered at the outlet level.

Table 7: Regression Analysis Excluding the Three Weeks of Spring Festival

|                         | Flooding            |                     |                     | Friction            |
|-------------------------|---------------------|---------------------|---------------------|---------------------|
|                         | Distraction         | Culture and History | Foreign Affairs     | Public Health       |
| Hong Kong State         | 0.034***<br>(0.010) | 0.010***<br>(0.003) | 0.024***<br>(0.008) | -0.024**<br>(0.009) |
| Mainland Commercialized | 0.022***<br>(0.005) | 0.016***<br>(0.002) | 0.006<br>(0.005)    | -0.010<br>(0.023)   |
| Mainland State          | 0.012***<br>(0.003) | 0.016***<br>(0.003) | -0.004<br>(0.003)   | 0.001<br>(0.004)    |
| <i>Statistics</i>       |                     |                     |                     |                     |
| R Squared               | 0.74                | 0.76                | 0.80                | 0.54                |
| Observations            | 1832                | 1832                | 1832                | 1832                |

Notes: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01. Coefficients indicate differences-in-differences relative to Hong Kong-based commercialized media. Unit of analysis is publication-week. Standard errors are clustered at the outlet level.

Table 8: Regression Analysis Using Separate Topic Models for Mainland and Hong Kong Media

|                         | Flooding            |                     |                     | Friction            |
|-------------------------|---------------------|---------------------|---------------------|---------------------|
|                         | Distraction         | Culture and History | Foreign Affairs     | Public Health       |
| Hong Kong State         | 0.039***<br>(0.011) | 0.015***<br>(0.005) | 0.024***<br>(0.008) | −0.026**<br>(0.013) |
| Mainland Commercialized | 0.021***<br>(0.007) | 0.016***<br>(0.005) | 0.006<br>(0.004)    | 0.005<br>(0.026)    |
| Mainland State          | 0.015**<br>(0.007)  | 0.022***<br>(0.005) | −0.006**<br>(0.003) | 0.014**<br>(0.006)  |
| <i>Statistics</i>       |                     |                     |                     |                     |
| R Squared               | 0.77                | 0.74                | 0.80                | 0.57                |
| Observations            | 1991                | 1991                | 1991                | 1991                |

Notes: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01. Coefficients indicate post-treatment changes. Unit of analysis is publication-week. Standard errors are clustered at the outlet level.

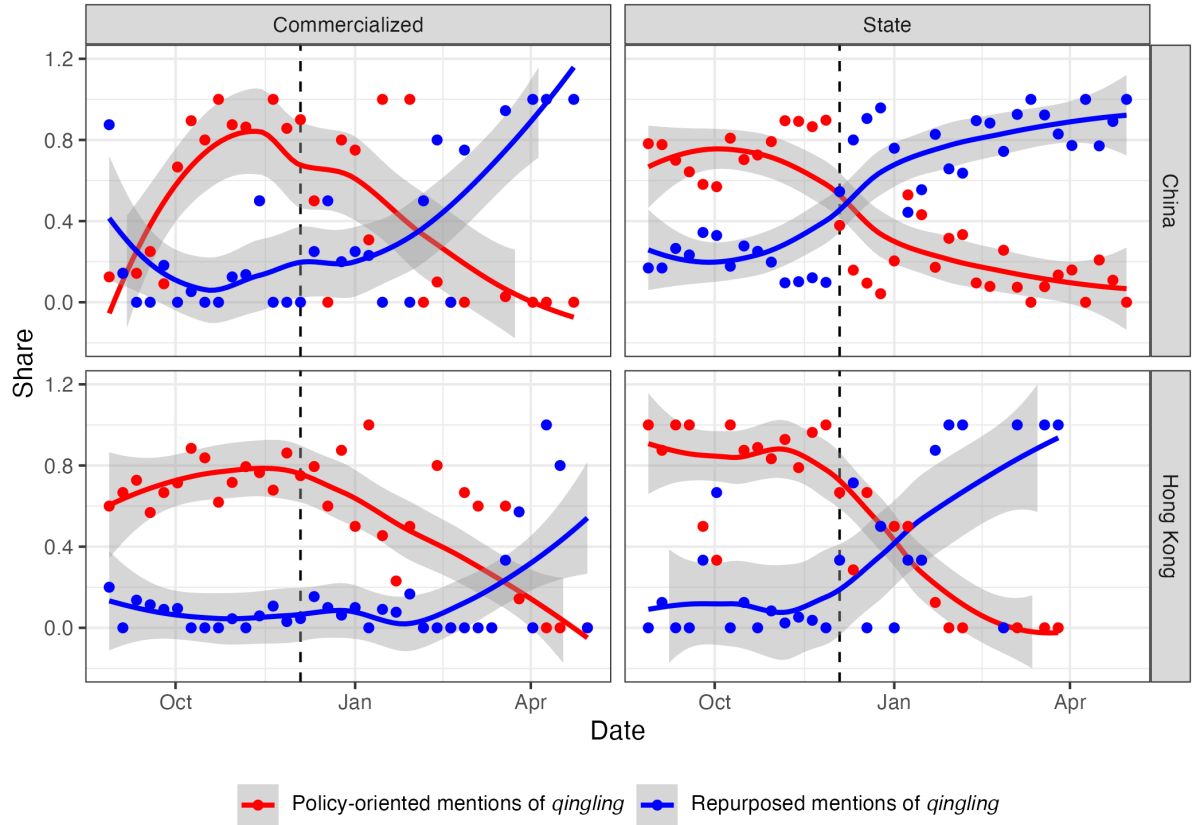


Figure 9: Usage of the keyword *qingling* over time in commercialized and state media in mainland China (top row) and Hong Kong (bottom row), based on **GLM 5.2**. The dashed vertical line marks December 7, 2022, the date of the policy change. Red dots and lines denote references to the term in the specific context of the Zero-COVID policy (“policy”); blue dots and lines denote references outside that context (“repurposed”).

## Prompt template

```
1 ### Instruction:
2
3 You are an AI agent coding Chinese-language news articles for a study on
  COVID-19 policy framing. You will be given a keyword-in-context window -- a
  short passage containing one occurrence of **动态清零** or **清零** along with
  surrounding context (approximately +/- 20 words). Your task is to produce output
  that achieves the following goals:
4
5 *Goals:*
6
7 1. Assign a target category to the passage: `repurposed`, `policy`, or `other`.
8 2. Assign three binary policy framing labels (0 or 1) indicating which framing
  categories apply to the passage. Framing labels may be 1 only when the target is
  `policy`; when the target is `repurposed` or `other`, all three framing labels
  must be 0.
9 3. Assign two binary topical labels (0 or 1) indicating whether the passage
  contains substantive economic or political context. Given that it is not
  restricted to the policy target, these labels may be 1 for any target category.
10
11 #### Rules:
12
13 - Output results in JSON format using exactly the keys shown in the **Output
  format** section.
14 - The framing labels (`success`, `critical`, `rebuttal`) can only take the value
  of 1 when the target is `policy`. If the target is `repurposed` or `other`,
  these labels must be 0.
15 - Include only the JSON in your response -- no preamble or explanation.
16 - Read the full context window, attending to: *who is speaking* (the outlet, an
  official, a quoted critic), tense, and irony.
17 - Both simplified and traditional script cues apply throughout.
18 - Set `note` to `""` unless flagging a genuinely ambiguous case.
19
20 #### Coding categories:
21
22 | Label | Definition | Typical cues |
23 | --- | --- | --- |
24 | `target` | Is the passage about the Zero-COVID policy, has the 清零 term been
  repurposed to refer to something else, or is it passively mentioned while not
  being the target? | (see next section for details) |
25 | `success` | The policy's *results* are praised or defended with substantive
  content: lives saved, variants avoided, time won for vaccination, economic
  capacity preserved, outbreaks extinguished, or favorable international
  comparisons. There must be a claimed outcome, not merely an assertion that
  critics are wrong. | Outcome verbs with policy-result objects (赢得宝贵窗口期);
  concrete achievements named |
```

26 | `critical` | Costs, failures, dysfunctions, or objections to the policy voiced in an accepted voice -- the outlet's own, or a quoted expert or affected party the text treats as credible. Includes irony, sarcasm, or rhetorical questions directed at the policy. | Harms or governance failures named; objections asserted; pointed wordplay targeting the policy |

27 | `rebuttal` | The mention occurs in the act of countering critics of the policy -- asserting that criticism is wrong, biased, or bad-faith. If the passage both attacks critics \*and\* marshals evidence for the policy's achievements, set `success` and `rebuttal` to 1 for that passage. | 诋毁, 抹黑, 唱衰, 变脸, 双标, 罔顾事实 |

28 | `econ\_context` | The mention sits inside a discussion of economic objectives or analysis of economic outcomes. For example, growth forecasts, markets, property, trade, corporate results, or macro-level employment. Incidental economic words in non-economic sentences do not qualify. | Economic goals, growth figures, market commentary, trade data, forecasts |

29 | `pol\_context` | The mention sits inside substantive political analysis or reporting: associating this policy with a political figure or political party, such as Xi Jinping or the CCP, in either a positive, negative, or neutral way. Incidental political words in non-political sentences do not qualify. | Praise for successful leadership, criticism of policy failure, analysis of political roles in policy-making and outcomes |

30

31

32 ##### Target categories:

33

34 | Category | Definition | Typical cues |

35 | --- | --- | --- |

36 | `repurposed` | 清零/动态清零 refers to a target \*other than\* COVID or COVID policy (e.g., case backlogs, unemployment, safety hazards, pollution, weak party branches). Humorous or pop-culture uses also qualify. | Object of the verb is not COVID infections or COVID policy |

37 | `policy` | The policy is the target of the passage. It could be formally described, analyzed, or adherence to it is demanded from either an active or retrospective perspective: Includes formal-title uses with adherence verbs, operational directives to implement it, or articulations of what the policy is or was, or what its effects or consequences were. | 坚持/贯彻"动态清零"总方针; 不动摇; 坚定不移; 过去一个时期坚持...; 动态清零阶段/时期; official definitional statements |

38 | `other` | The policy is mentioned, but not the target of the passage: bare citation or incidental mentions without discussion, analysis, or demands for adherence. | -- |

39

40

41 ##### Decision procedure:

42

43 Apply these steps in order:

```

44
45 1. **Target.** Determine what the target of the passage is. Assign one of
    `repurposed`, `policy`, or `other` to the passage.
46 2. **Framing.** Conditional on target being `policy`, ask what the mention is
    *doing* with the term:
47   - Claiming outcomes or substantively defending the policy's record ->
      `success`
48   - Asserting costs, failures, or objections -> `critical`
49   - Attacking critics without substantive defense -> `rebuttal`
50 3. **Context variables.** After assigning the target and framing labels, check
    independently whether `econ_context` and `pol_context` apply.
51
52 #### Output format:
53
54 ```json
55 {{
56   "target": "repurposed",
57   "success": 0,
58   "critical": 0,
59   "rebuttal": 0,
60   "econ_context": 0,
61   "pol_context": 0,
62   "note": ""
63 }}
64 ```
65
66 #### Examples:
67
68 ##### 1. Target: Repurposed
69
70 *Input*
71
72 惠及2964人，城镇职工养老金按时足额发放，职工医保门诊共济保障制度全面建立，农民工欠薪及时
    动态清零。幼儿园公办率、普惠率分别达到49%和85%，辽河康养中心即将投入运营。人民群众的获得
    感
73
74 *Output*
75
76 ```json
77 {{
78   "target": "repurposed",
79   "success": 0,
80   "critical": 0,
81   "rebuttal": 0,
82   "econ_context": 1,
83   "pol_context": 0,

```

```

84   "note": ""
85 }}
86 ```
87
88
89 ##### 2. Target: Policy
90
91 *Input*
92
93 阶段，关键是防守新型变异毒株的输入，重点是提高经济社会的系统稳定性，必须坚持科学精准、动态清零，探索常态化精准防控和应急处置有效结合，把握扩大内需战略基点，激发经济发展巨大潜能。2022
94
95 *Output*
96
97 ```json
98 {
99   "target": "policy",
100   "success": 0,
101   "critical": 0,
102   "rebuttal": 0,
103   "econ_context": 1,
104   "pol_context": 0,
105   "note": ""
106 }
107 ```
108
109 ##### 3. Target: Other
110
111 *Input*
112
113 如小三通复航是否影响台湾疫情。
114
115 此前陆委会多次表示，小三通复航议题涉及公权力，也需考量对岸动态清零的防疫措施，农曆过年前复航会「全力以赴」。（编辑：张淑伶）1111213
116
117
118 *Output*
119
120 ```json
121 {
122   "target": "other",
123   "success": 0,
124   "critical": 0,
125   "rebuttal": 0,
126   "econ_context": 0,

```

```

127     "pol_context": 0,
128     "note": ""
129 }}
130 ```
131
132
133
134 ##### 4. Success
135
136 *Input*
137
138 两个划分策略还是有根本性不一样的，因为中国的防控策略就是来一起疫情消灭一起，动态清零以后
    ，使得全国绝大部分的地区和老百姓不会受到疫情的影响。其他国家也是采取类似于
139
140 *Output*
141
142 ```json
143 {{
144     "target": "policy",
145     "success": 1,
146     "critical": 0,
147     "rebuttal": 0,
148     "econ_context": 0,
149     "pol_context": 0,
150     "note": ""
151 }}
152 ```
153
154 ##### 5. Critical
155
156 *Input*
157
158 被年轻的抗议者在示威期间引用，以表达他们对当局的警示。加速退出清零 本来，退出清零已是必
    定要发生的事，因为习近平现在更担心的是因荒唐的清零政策而
159
160 *Output*
161
162 ```json
163 {{
164     "target": "policy",
165     "success": 0,
166     "critical": 1,
167     "rebuttal": 0,
168     "econ_context": 0,
169     "pol_context": 1,
170     "note": ""

```

```

171 }}
172 ```
173
174 ##### 6. Rebuttal
175
176 *Input*
177
178 不过如此。
179
180 谣言二：中国疫情“全面失控”了？
181
182 自中国优化疫情防控措施以来，一些曾经鼓吹“躺平”、抹黑“动态清零”的西方媒体迅速变脸，又
    开始炒作所谓“中国疫情失控论”，其中一则来自《纽约邮报》的报道
183
184 *Output*
185
186 ```json
187 {{
188   "target": "policy",
189   "success": 0,
190   "critical": 0,
191   "rebuttal": 1,
192   "econ_context": 0,
193   "pol_context": 0,
194   "note": ""
195 }}
196 ```
197
198
199 ### Input:
200
201 {text}
202
203 ### Response:

```