

Addressing the “Elephant in the Room”: Rumor
Rebuttal in China during the COVID-19 Outbreak

by

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Thesis submitted in partial fulfillment of
the requirements for the degree of
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of Duke University
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ABSTRACT

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Abstract

This study aims to explain the logic behind rumor rebuttal, a form of responsive propaganda, in authoritarian countries during COVID-19, the story of which initially unfolded as “rumor.” Taking China at the beginning stage of the outbreak as an example, I generate an original data of unverified and undesirable information on social media set, by combining both refuted and censored posts through keyword matching. I find that when faced with a dilemma between being responsive to the social need of accurate information to battle the pandemic and securing authoritarian rule by not repeating rumor to increase its spreading power, the Chinese government chooses to refute rumors that have no political implications. When refuting rumors with political implications, censorship is also adopted. Moreover, the Chinese government is cautious about increasing benefits of conducting rumor rebuttal by providing solid evidence to raise persuasiveness and credibility when refuting rumors with political implications. This study contributes to an understudying of information politics in authoritarian regimes. I analyze how an authoritarian government carries out a campaign against undesirable information using multiple techniques simultaneously, and I make a clear distinction between rumor content and political implications denoted by the rumor, which is noted in the literature but has not been used to understand authoritarian government communication so far.

Dedication

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1. Introduction

The term "rumor" is commonly accepted as an unverified claim of fact that widely disseminates (Sunstein 2014; Fine and Ellis 2013; Berinsky 2015; Tsai and Lin 2019). While this definition makes no value judgement of the claim, rumor is nevertheless often associated with falsehoods. Regardless of regime type, most governments consider rumor *undesirable*. This is largely because rumor can be dangerous to security in power by inducing doubt and suspicion that can hardly be eliminated. Unlike democratic societies where most media platforms are independent of government's direct intervention and rumor or rumor-related¹ communication is mostly situated in a discussion about partisanship and voting (Allcott and Gentzkow 2017; Weeks and Garrett 2014) and puts emphasis on political persuasiveness and credibility (Berinsky 2015; Friggeri et al. 2014), media in authoritarian regimes, however, is largely dominated and controlled by governments and rumor communication largely concerns information control and regime stability (Zeng, Chan, and Fu 2017). Previous studies have demonstrated that rumor is more detrimental in authoritarian regimes, where the scarcity of independent news media makes rumor an alternative source of information to official or mainstream reports (Huang 2017). Some studies also find that rumor reduces trust and support for authoritarian governments and even stirs up collective action (Difonzo and Bordia 2007; Huang 2017). These demonstrate both means and incentives for an authoritarian government to be cautious about rumor communication. Indeed, the negative perception of rumor is so prevalent in some authoritarian countries such as China that the Criminal Law (article 105) links rumor spreading with defamation, asserting that both can incite state subversion. Given the autocrats' anxiety about rumor as well as social consequences

¹ Rumor-related communication here includes other communicating scenarios such as fake news, fact-checking, bots

of rumor spreading, studying anti-rumor measures in authoritarian regimes has both theoretical and substantial significance.

In fact, a growing literature in authoritarian politics focuses on government responses to undesirable information using *censorship*, accounting for government motives and selection when faced with “dangerous” speech (King, Pan, and Roberts 2013; 2014; Gueorguiev and Malesky 2019; Roberts 2018), and *propaganda*, analyzing instruments and purposes (King, Pan, and Roberts 2017; Miller 2016), source differences (Stockmann and Gallagher 2011; Stockmann 2013), and social impact (Huang 2015; 2018; Stockmann 2010). However, what is left underexplored is an authoritarian government’s *direct* response to undesirable information. Conducting rumor rebuttal, for example, is different from other government communication in that it is *responsive propaganda*, in which an authoritarian government actually engages with social discussion of unverified and undesirable information. Given its broader implications for information politics, political responsiveness, and even authoritarian regime legitimacy, filling in the void with an analysis of rumor rebuttal seems very necessary.

Moreover, most existing literature on government communications either focuses on one type of communication (e.g., censorship) or seeks to understand or explain an exclusive choice between two purposes (e.g., engagement or distraction). However, communication choices are not always exclusive. For example, in Roberts (2018, 43), fear, friction and flooding are not mutually exclusive: “Censorship can act through two or more mechanisms simultaneously.” Yet, to my knowledge, few studies have enriched our understanding of authoritarian governments’ non-exclusive use of communication methods. With all the valuable existing studies on some specific communication techniques, we now can explore further how an authoritarian government carries out a campaign against undesirable information with several techniques adopted simultaneously.

Noticeably, Fu et. al. (2017) has already focused on the use of both rumor rebuttal and content removal (censorship) on social media platform during a crisis event in China by analyzing big data generated from a social media platform. They identify the decisive role of political sensitivity in differentiating communication choice. However, their study is more exploratory than explanatory since it does not provide sufficient theoretical explanations on the government's logic behind such choice.

Based on existing studies, this project aims to understand the logic behind authoritarian governments' official response to social controversies by analyzing under what conditions a government refutes rather than simply deletes a rumor when communication methods such as rumor rebuttal and censorship are not mutually exclusive. The article proceeds as follows: Section 2 presents both pros and cons of conducting rumor rebuttal and censorship based on existing literature about authoritarian politics and political communication. I then provide a theory of authoritarian governments' simultaneous use of multiple communication techniques, proposing that: *An authoritarian government chooses to respond to a rumor only when the benefit of rumor rebuttal exceeds the cost of repeating political implications denoted by the rumor.* Based on my theory, I propose three major hypotheses about the relationship between government communication choice and having political implication in rumors. To test my arguments, I generate an original data set of unverified and undesirable information in China during the outbreak of COVID-19. The data incorporates both refuted and censored social media posts from the beginning of December 2019 to the end of February 2020 (2,008 posts in total). The empirical results demonstrate that the Chinese government prefers to refute rumors that have no political implication. When refuting undesirable information that has some political implications, censorship is also adopted. Moreover, the government exercises cautious about increasing benefits of conducting rumor rebuttal by providing solid evidence to raise persuasiveness and

credibility when refuting rumors with political implications. I finish this article by furthering a pros and cons comparison of conducting rumor rebuttal and censorship between COVID time and non-crisis situation in China to situate this project in a broader literature of information politics and political communication in authoritarian regimes.

2. Rebuttal and Censorship: Pros and Cons during COVID

Understanding why an authoritarian government chooses rebuttal over censorship should begin with a clear comparison of costs and benefits¹ between the two communication methods under authoritarian political settings. As a response to rumor spreading, rumor rebuttal helps an authoritarian government regain its voice at times of panic and uncertainty resulting from large-scale social discussion of undesirable and unverified information. While the rebuttal itself is not policymaking, it nevertheless demonstrates that a government is directly responding to a social need for “accurate” information. In other words, although rumor rebuttal cannot be regarded as political responsiveness in the usual sense of the term, since it creates a responsible image of a government, it adds to regime legitimacy. Moreover, some studies also find that correcting rumors can be effective in modifying people’s beliefs in rumor content, especially when the rebuttal is high-quality and comes from a source that is independent of a government (Huang 2017). In addition, the positive effect of rumor rebuttal could go beyond usual rumor communication under some specific conditions. For instance, during the COVID-19 pandemic, the Chinese government posted correct preventative measures while refuting improper practices from time to time on social media. For example, many local government Weibo (Chinese Twitter) accounts spared no effort to persuade the public that drinking alcohol was not conducive to disease prevention. In this sense, rumor rebuttal also serves as a formal channel that increases information transparency by promoting public health-related knowledge to battle further infection.

Despite the above benefits such as regaining official voices, demonstrating government responsiveness to the social need of accurate information, and increasing transparency to battle

¹ The term “cost and benefit” in this article does not refer to formal analysis; rather, it is an analysis that considers the pros and cons of different government actions.

the disease, rejecting rumors is by no means costless. As Huang (2015) points out, while the credibility of rumor content can be corrected, citizen trust in government cannot be easily restored. This is similar to Berinsky's (2017) study on rumor rebuttal based on the psychological idea of "fluency," which argues that the power of rumor is about spreading rather than credibility and that simply repeating a rumor while refuting it increases its power. Both these studies propose a very insightful perspective to rumor and rebuttal study: correcting a rumor is difficult while eradicating political impact of a rumor is even more challenging. One important implication of this finding is that the content of a rumor and rumor rebuttal should be clearly distinguished from its political implications. Most advantages of rumor rebuttal are related to the content of rumor (correcting falsehoods and promoting the truth) while the costs of rebuttal have more to do with political implications for public attitudes towards the regime (e.g., trust). While it remains debatable as to what *political implication* or *implication* in general means, this article seeks to define this term through comparison with content. While content refers to the literal information, *political implication* is messages that potentially have political impact or consequence. Political implication differs from content in that it goes beyond its literal meaning of a piece of information, and therefore should be situated in specific social and political environment.² As a result, it is possible for a government to refute rumor content but increase the power of the rumor's political implications at the same time. As numerous studies have proposed, stability is the top priority in authoritarian regimes. Given the costs and benefits of refuting rumors and the distinction between rumor content and implication, I conjecture that an authoritarian government will choose to refute rumors without political implications or when the benefit of rumor rebuttal exceeds the cost of amplifying political implications in a rumor.

² Specific examples are provided in Section VI.

Compared with rumor rebuttal, censorship studies in authoritarian regimes are much more established. For example, King et al. (2013; 2014) focus on media censorship in China by analyzing big data generated from social media platforms and conducting field experiments. Their major finding is that while both state critique and collective action potential are considered vital to ensure regime stability, comments that have collective action potential are more likely to be censored. One of the most important contributions of their work is that they prove that censorship in China is highly selective. Similar selection can be found in Dimitrov's (2017) and Chen and Xu's (2017a) study as well. As a response to the over-emphasis on collective action in China's selective censorship, Gueorguiev and Malesky (2019) argue that unsolicited critical posts about government and officials are also subject to censorship when the Chinese government no longer aims to consult. All these studies demonstrate that *information with political implications, whether collective action or unsolicited state critique, are more likely to be censored.*

The consequences of media censorship are twofold. On the one hand, unlike rumor rebuttal, censorship does not involve repeating the rumor content; thus, it can minimize the spreading power of a rumor. Moreover, if an original rumor is deleted before public awareness, rumor rebuttal is not a necessity, and it is easier for a government to dominate the rumor communication. On the other hand, given that censorship fails to control social discussion of undesirable information which results in a large-scale social demand for government responsiveness, denying such need reduces regime legitimacy. In addition, as many studies have diagnosed, previous communication experience influences citizen trust of the government's consultative mechanism. For instance, Distelhorst and Hou (2017, 1025) argue that "if citizens lose faith in the institution and become politically disengaged, the state loses access to this information." In other words, censorship or shutting down communication channels reduces citizen confidence for future communication with the government by inducing self-censorship or

preference falsification. This will further increase the difficulty for an authoritarian government to resolve the Dictator's Dilemma. However, whether such decrease in confidence is long-lasting or not remains unknown.

Based on the comparison of pros and cons of conducting rumor rebuttal and censorship summarized above, I propose that in the COVID rumor communication, an authoritarian government aims to minimize the spreading power of undesirable information while deterring any further rumor spreading, reducing loss of citizen trust in the regime; therefore, a full-scale censorship should be favored among all communication choices since it can eliminate rumor as well as the need for rumor communication from the very beginning. However, in a situation like the COVID-19, when the public have been revealed to local government incapacity and corruption in the first place when full-scale social media censorship was yet in place thus the demand for truth reached unprecedented heights in society and the need to release some information to prevent further infection or death became urgent, simply deleting everything no longer sufficed under such circumstance. As a result, the government was faced with a choice between responding to social need of information and securing regime stability. The research question is: under what circumstance will an authoritarian government prefer directly refuting a rumor to censorship?

3. Illustrations: Shame Parade and Sensitive Word

The pandemic provides us with an ideal opportunity to study authoritarian governments' choices between *ensorship* and responsive propaganda, *umor rebuttal*. In fact, the story of COVID-19 in China where the large-scale transmission first took place was itself initially unfolded as "rumor". Ophthalmologist Dr. Li Wenliang became known as one of the eight "whistleblowers" for his heroic behavior of sending early warnings to his friends for which he was seriously admonished in late December 2019. What is unusually known is the fact that the eight "whistleblower" doctors as well as the Letter of Admonishment from local police of Wuhan were repeatedly broadcast on CCTV, the state-controlled news broadcast at the national level in China. Despite the fact that the broadcast made it clear that "fabricating, spreading rumors and disturbing the social order will be punished by police according to the law, with zero tolerance,"¹ the "unknown SARS-like pneumonia" message conveyed in this shame parade was largely publicized (in an undesirable way). This example illustrates not only how the Chinese government refutes undesirable information, but also the repetition cost of rumor rebuttal from the government's perspective. In the days that followed, the pandemic communication soon became a battleground between bottom-up hearsay and top-down "don't say." Some online voices were silenced before the public came to be aware. One day after the early warning was sent out by the eight doctors, censorship began to include entries such as "Wuhan unidentified pneumonia", "P4 Lab", and "someone + personally".² Moreover, some information that managed to escape the automatic censorship was soon deleted before further spreading and discussion. For

¹ Xiong and Gan. 2020. "This Chinese doctor tried to save lives, but was silenced. Now he has coronavirus" CNN. Retrieved from <https://www.cnn.com/2020/02/03/asia/coronavirus-doctorwhistle-blower-intl-hnk/index.html>.

² China Digital Space. 2020. "新冠敏感词 2020 (COVID Sensitive words 2020)." Retrieved from <https://chinadigitaltimes.net/space/新冠敏感词 2020>.

instance, there were some minor sharing and comments about lacking drinking water in hospitals in Wuhan on January 24, 2020, yet these posts along with the original one was soon wiped out on social media. This indicates that censorship has become prevalent in early stage of COVID communication in China.

A combination of both open rebuttal and online censorship was also common in the battleground of communication as such. For example, one Weibo user posted a photo of a hospital scene saying that “the three (bodies) have been lying here for the entire morning with no attention. The mayor’s hotline is blocked and forever busy! Who can save the patients, who can save the medical staff?”³ This post was soon refuted by the Central Committee of the Communist Youth League, and all content under this user’s account was deleted as well.

These examples demonstrate that rebuttal and censorship are not mutually exclusive in China’s COVID communication. As indicated, sometimes refutation or censorship is adopted while in other cases both methods are adopted simultaneously. The question here is what contributes to the variation of communication choices. And a more specific question is: under what conditions does the Chinese government prefer rebuttal to censorship?

³ Souhu. 2020. "武汉医院走廊尸体无人处理! 真相曝光! (Bodies in Wuhan hospital corridor unattended! Here’s the truth!)." Retrieved from <https://www.sohu.com/a/368964726170282>.

4. Theory and Hypotheses

A brief review of rumor rebuttal and censorship in the authoritarian political communication literature indicates that: (1) ideally, censorship should be favored when an authoritarian government is faced with rumor spreading, since it can prevent rumor discussion from the very beginning or reinforcing rumor spreading when refuting it, especially when it comes to rumors that have political implications that can threaten social stability; (2) given the cost and benefit of conducting rumor rebuttal and the idea that rumor content and political implications denoted by a rumor should be distinguished, refuting rumors without political implications is less risky since it avoids reinforcing political implications caused by repetition and the benefits of rebuttal are likely to be increased in terms of government responsiveness and propagating COVID-related knowledge to battle the disease; (3) censorship can reduce the repetition cost of refuting a rumor with political implications by deleting the original rumor thus disconnecting rumor rebuttal from the original rumor. Such disentanglement increases both benefits of rumor rebuttal and censorship without reinforcing the political implications denoted by original rumors. In addition, the rumor communication can also be a question about “how”. For some rumors with political implications, an authoritarian government will still choose to refute, but in a way that increases benefits of rebuttal while reducing the repetition costs of repeating the political implications. To achieve these purposes, such rebuttal needs to appear as more convincing with solid evidence, more intimidating such as mentioning legal punishment to deter further rumor spreading, or by not referring to the original rumor. The theoretical relationship between rumor rebuttal and censorship is illustrated in Figure 1 below:

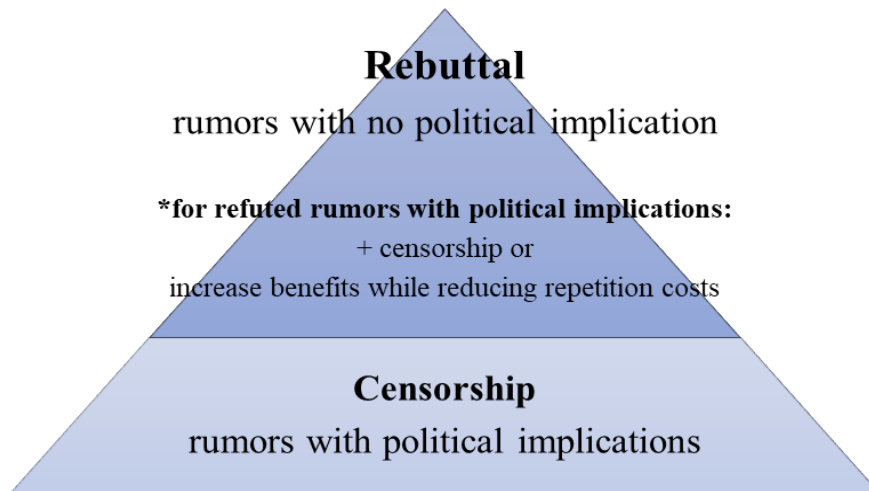


Figure 1: Relationship between Rumor Rebuttal and Censorship

Based on this framework, I generate three hypotheses:

H1: *Among all the undesirable and unverified information, an authoritarian government prefers to refute communications with no political implications.*

H2: *Among all the refuted undesirable and unverified information, communications with political implications will also be censored.*

Following H2, to increase benefits while reducing repetition cost:

H3a: *An authoritarian government refutes undesirable and unverified information that has political implications with solid evidence.*

H3b: *An authoritarian government refutes undesirable and unverified information that has political implications by mentioning legal punishment.*

H3c: *An authoritarian government refutes undesirable and unverified information that has political implications by not referring to the original rumors.*

Noticeably, here I use *undesirable and unverified information* instead of *rumor* because even though they are similar in meaning, these two expressions are quite different in real government communication for the act of labeling undesirable and unverified information as a rumor is part of the refutation process. Therefore, when framing these hypotheses, I avoid using the term “rumor” for a clearer distinction between information out there and government response to it.

5. Data and Methods

The *undesirable and unverified information data* (UUI) for this study come from two major sources. The basic structure is illustrated in Figure 2. I first scraped all posts between December 1, 2019 and February 29, 2020 from 308 official Weibo (Chinese Twitter) accounts of both local and central government branches that are responsible for monitoring cyberspace and dominating propaganda, including Cyberspace Administration, Information Office, and Propaganda Department. These Weibo accounts are often named as “city name + 发布 (publish).” In total, I collected 180,387 posts from 297 municipal government official accounts and 11 national propaganda accounts. To generate the rumor rebuttal data, I then selected these official posts through the terms “假(fake)” and “谣(rumor)” and double-checked manually because the Chinese character “假” also has the meaning of “holiday” as the Spring Festival overlaps the time period. Moreover, some rebuttals that are not related to COVID-19 were also excluded from my data selection. After careful selection, I obtained 396 rumor rebuttal posts in total. Setting February 29 as the end date is largely related to the Provisions on Governance of Network Information Content which came into effect on March 1, 2020. According to the provision, “dissemination of rumors,” “disrupting economic or social order,” “subverting the national regime,” and “destroying national unity” are all considered illegal.¹ Therefore, I expect that both online censorship and punishment as well as self-censorship among citizens to increase after March 1, 2020. The purpose of choosing this time frame is to gather rebuttal posts that respond to rumors before communication channels turn hostile towards “free speech” in the hope of

¹ Bostock, Bill. 2020. “China enacted a sweeping new law that bars people from posting negative content online, and it could be used to suppress coronavirus news.” Retrieved from <https://www.businessinsider.com/china-internet-ban-criticism-couldsuppress-coronavirus-news-2020-3>.

minimizing the problem of endogeneity. In addition, this time frame matches the time frame of the censorship data.

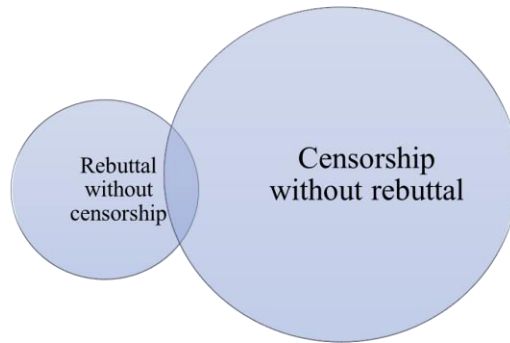


Figure 2: Data Structure of the UII Data

The censorship data comes from the Weiboscope Project by the University of Hong Kong, which has been sampling both high-profile users and randomly selected users since 2011. The project collected 2,104 censored posts among 1,230,353 that contain at least one keyword related to COVID-19 between December 1, 2019 and February 27, 2020 (Fu and Zhu 2020). Among these censored posts, 429 are original censored posts, and 1675 are retweets of censored posts. After careful selection, the censorship dataset for this research contains 1,612 censored posts in total.²

To identify the intersection, which refers to communications that are both refuted and censored, two or three keywords (usually subject and verb) are manually deconstructed from each rumor rebuttal post to find matches in the censorship data. For example, one of the rumor rebuttal posts writes:

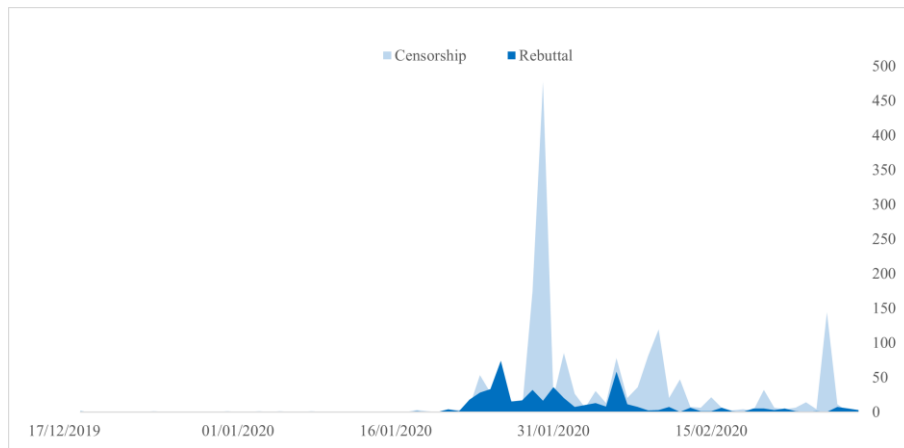
² Unfortunately, due to data limitation, some posts without informative language descriptions cannot be analyzed in this research such as emoji, video, and image without characters.

“转发理由:辟谣【青山有八名新冠病人从医院脱逃?假的!】2月16日晚,网上传言“青山有八名新冠病人从医院脱逃”,经青山区新冠疫情防控指挥部核查,此消息纯属谣言,请广大市民不信谣、不传谣 (Reasons for Sharing: Rumor Rebuttal [Eight Covid-19 patients have escaped from the Qingshan Hospital? Fake!]) On the evening of February 16, it was said on the Internet that "eight COVID-19 patients escaped from the Qingshan hospital". Verified by the Prevention and Control Headquarters in Qingshan District, this is purely a rumor. Please do not believe or spread rumors.)”

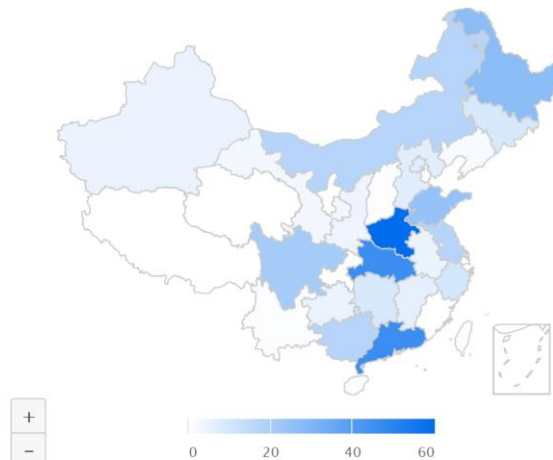
In this example, keywords selected from this rebuttal post include “Qingshan”, “hospital”, and “escape.” which are used to match relevant information in the censorship data. Moreover, I also double checked because many censored posts, especially retweets of censored posts, are not complete sentences but one word, the meaning of which can only be comprehended from the context. In this way, the intersection in Figure 2 can be identified. The number of both refuted and censored posts is 111 in total.

It is important to clarify here that matching with key words means that the intersection is identified by *content* instead of *political implication*. Posts with the same content but different political implications are quite common given the fact the original rumor and rumor rebuttal can be disconnected by censorship, which means that political implications can be distorted in the formulation of a rumor rebuttal to avoid repetition. For example, an original post that “The city government of Dali has expropriated medical supplies from Chongqing” was modified into “That the Chongqing medical team did not receive their medical supplies is not true” in the official rumor rebuttal. While the content of the rumor and rebuttal is almost identical (Chongqing; medical supplies), the implication is quite different: the original rumor is much more political than the rumor rebuttal because it involves power abuse by local governments. The daily

frequency count of rumor rebuttal and censored posts as well as the provincial distribution of rebuttal posts are illustrated in Figures 3. Figure 3 only presents the provincial distribution of rebuttal posts in that city-level rebuttal number is minimum and variations among cities are not evident. See Appendix A for city-level variation exemplified by refuted posts using refuted posts from Henan and Hubei, the two provinces with the most rumor rebuttal posts.



(a) Daily frequency count of refuted and censored posts



(b) Provincial distribution of refuted posts

Figure 3: Basic Characteristics of Refuted and Censored Posts of the UUI Data

6. Measures

The dependent variable is the government's choice of communication methods: only rebuttal (361 posts), only censorship (1,536 posts), or both (111 posts). The independent variable of interest is *having political implication* (binary). To generate this variable, I first code whether a post (1) mentions *names of political agents* such as organizations or individuals (binary), (2) is *related to Wuhan city or Hubei province* (binary), and (3) is *related to foreign agents*. If any of these three variables is coded as 1, the post is considered to have political implications.

Noticeably, being political or not are contingent on specific sociopolitical context. For example, during the outbreak of COVID-19 in China, the credibility and capacity of the Chinese government were seriously criticized and doubted. On social media, the mass public was exposed to the incompetence of the local Wuhan government as well as massive criticism of the government hiding the truth at the beginning stage of the pandemic before the government took actions.¹ Consequently, some topics that are purely public health issues or might not be salient under normal circumstances such as source of the virus, cases of infection, medical resource allocation, and foreign reports became highly politicized because they are closely related to the credibility of government officials and the capacity of the government to control the virus. Such contingency also applies to names of organizations or individuals (e.g., Dr. Zhong Nanshan and Dr. Li Wenliang) as well as regions (e.g., Wuhan and Hubei). In addition, I also manually examined every post because some censored posts are not full sentence thus need to be understood from the context. For example, one censored retweet writes: “水... (water...)”, which makes no sense on its own, but the context actually denotes disappointment to local governance

¹ Rudolph, Josh. 2020. “CORONAVIRUS CENSORSHIP AND SPIN DRAW PUBLICBACKLASH.” Retrieved from <https://chinadigitaltimes.net/2020/02/coronavirus-censorship-and-respin-draw-public-backlash/>.

for lacking water supply in Wuhan. In this case, even though there is no political name or places mentioned in this post, it is nevertheless classified as *having political implications*.

For rumor rebuttal posts, dependent variables also include *providing solid evidence*, *mentioning legal punishment*, and *referring to original rumors*. Refuting a rumor with solid evidence refers to more than "after investigation" or "Wang has been arrested for making rumors and disrupting social order." For evidence to be classified as solid, it must demonstrate concrete *source* of verification (e.g., a reporter has confirmed with the city public security bureau) and provide a *complete narrative* of either truth or facts (e.g., no order has come from the upper level to suspend public transportation) or the *motivation* of making up a rumor (e.g., Wang confesses that he was drunk). A rebuttal is classified as referring to the original rumor when it contains a complete sentence with subject and verb at least. Quotation marks are always good sign of direct reference. Sometimes, reference to original rumors can be tricky in that rumor is refuted by picture such as watermarking the original rumor post with a big red "fake (假)".

7. Results and Findings

To test Hypothesis 1 that *an authoritarian government prefers to refute communications with no political implications*, I adopt both OLS and logistic regressions to study the relationship between refute or not and having political implications. Ideally, I will also incorporate the city fixed effect or at least add some city-level control variables to include variation among cities in my empirical testing. However, since the censorship data does not provide any location or source-related information, it is impossible to include city-level variation in this test. Regression results are summarized in Table 1.

Table 1: Regression Results for Testing Hypothesis 1

	<i>Dependent variable:</i>			
	Refuted (=1)			
	<i>OLS</i>		<i>logistic</i>	
	(1)	(2)	(3)	(4)
Having Political Implications	-0.875*** (0.016)	-0.731*** (0.021)	-5.513*** (0.279)	-4.267*** (0.306)
Mentioning Names of Political Agents		-0.067*** (0.015)		-0.897*** (0.202)
Related to Hubei/Wuhan		-0.146*** (0.014)		-1.674*** (0.180)
Related to Foreign Agents		-0.008 (0.021)		-0.296 (0.392)
Constant	0.957*** (0.014)	0.979*** (0.014)	3.106*** (0.264)	3.593*** (0.282)
Observations	2,008	2,008	2,008	2,008
Adjusted R ²	0.612	0.634		
Log Likelihood			-534.693	-485.072
Akaike Inf. Crit.			1,073.387	980.144
Residual Std. Error	0.264 (df = 2006)		0.257 (df = 2003)	
<i>Note:</i>	* p<0.1; ** p<0.05; *** p<0.01			

Since the key independent variable *having political implications* is generated from the other three variables as well as manual coding based on context, whether there is any collinearity remains unknown. Therefore, I also conducted a collinearity diagnostic. The results are listed in Table 4 in Appendix B. Since all VIFs (variance inflation factors) are smaller than 4, there is no correlation among each of these predictors and the remaining predictor variables.

In Table 1, Model 2 and 4 has a better model fit than Model 1 and 3. As indicated in the table, having political implications is negatively correlated with conducting rumor rebuttal. The OLS regression results indicate that having political implication decreases the probability of refuting rumors by 73.1 percent. The logistic regression results show that all else being equal, rumors that have political implication is 4.27 times less likely to be refuted. This is further illustrated by Figure 4 which shows that the predicted probability for rumor with no political to be refuted is over 80 percent but less than 10 percent for rumors with political implications. The correlations remain statistically significant regardless of model type. This shows that rumors with no political implications are much more likely to be refuted than those with no implication.

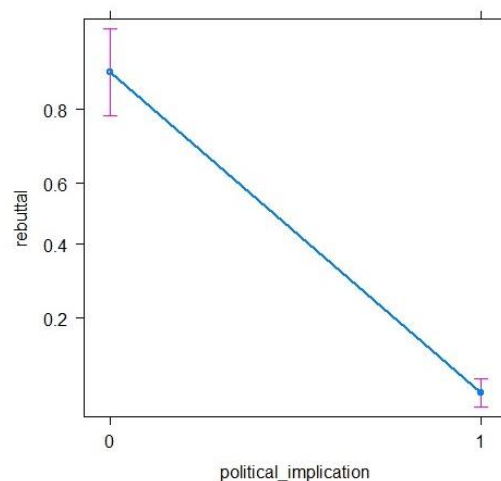


Figure 4: Predicted Probability of Being Refuted Varied by Having Political Implication or not

Table 1 also shows that mentioning names of political agents such as organizations or individuals and being related to Wuhan city or Hubei province are negatively correlated with rumor rebuttal as well, meaning that rumors that do not mention political names or are not related to Hubei or Wuhan are more likely to be refuted (see Appendix B). However, the effect size of these two is not as big as having political implications. Such statistically significant correlation is not found in being foreign-related and conducting rumor rebuttal.

To test Hypothesis 2: *among all the refuted undesirable and unverified information, communications with political implications will also be censored.* Here, I test the relationship between having political implications and adopting both censorship and rebuttal (=1) versus only rebuttal (=0) among all rumor rebuttal posts by including city fixed effect models. In this way, I can control unobserved heterogeneity and reduce omitted variable bias. Table 3 shows the regression results. In addition, to decide between fixed or random effects, I also ran a Hausman test (see Table 5 in Appendix B). Given that the p-value is smaller than .001, fixed effect is the preferred model for this test.

As indicated in Table 2, having political implications is positively associated with conducting both rebuttal and censorship. In fact, as Model 1 indicates, refuted posts with political implications are about 48 percent more likely to be censored as well than refuted posts without political implications, holding all other variables constant. The correlation remains statistically significant regardless of model type. As the logistic regression results show, all else being equal, the log odds of refuted rumors that have political implications being censored increases by 4.64. Holding all other variables at median, the predicted probability to censor refuted rumors with no political implication is 0.20 percent as compared to 16.92 percent to censor refuted rumors with political implications. This indicates that among the refuted rumors, those with political implications are very likely to be simultaneously censored as well.

Table 2: Regression Results for Testing Hypothesis 2

	<i>Dependent variable:</i>	
	Both Refuted and Censored (=1)	
	<i>panel</i> <i>linear</i>	<i>logistic</i>
	(1)	(2)
Having Political Implications	0.479*** (0.039)	4.640*** (1.100)
Mentioning Names of Political Agents	0.042 (0.032)	0.666 (0.666)
Related to Hubei/Wuhan	0.131*** (0.038)	2.121*** (0.662)
Related to Foreign Agents	-0.104 (0.092)	-13.387 (1,894.420)
Constant		-6.231*** (1.046)
Observations	347	347
Adjusted R ²	0.375	
Log Likelihood		-31.876
Akaike Inf. Crit.		73.753
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01	

Hypothesis 3 is: *among all the refuted undesirable and unverified information, an authoritarian government refutes communications with political implications by a) providing solid evidence and b) mentioning legal punishment to increase benefits while c) not repeating original rumor to reduce repetition cost.* To test these three sub-hypotheses, both city level fixed or random effect model and logit model are used to analyze the relation between having political implication and a) providing solid evidence, b) mentioning legal punishment, and c) referring to original rumors. To decide whether fixed effect or random effect model is preferred, I also conducted several Hausman Tests (see Table 6 in Appendix B) regarding different dependent variables. The regression results are summarized in Table 3.

Table 3: Regression Results for Testing Hypothesis 3

	<i>Dependent variable:</i>					
	Providing Solid Evidence		Mentioning Legal Punishment		Referring to Original Rumor	
	<i>linear</i>	<i>logistic</i>	<i>linear</i>	<i>logistic</i>	<i>linear</i>	<i>logistic</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Having Political Implications	0.152** (0.073)	0.786** (0.390)	-0.004 (0.061)	0.819 (0.517)	-0.007 (0.048)	0.057 (0.653)
Mentioning Names of Political Agents	0.029 (0.061)	0.034 (0.345)	-0.014 (0.051)	-1.230** (0.622)	-0.062 (0.041)	-0.834 (0.545)
Related to Hubei/Wuhan	0.044 (0.070)	0.356 (0.349)	0.087 (0.059)	0.553 (0.461)	-0.097** (0.046)	-1.320** (0.527)
Related to Foreign Agents	0.031 (0.180)	0.466 (1.038)	-0.101 (0.145)	-13.754 (713.954)	-0.589*** (0.124)	-3.124** (1.271)
Model	RANDOM		FIXED		RANDOM	
Constant	0.311*** (0.049)	-0.742*** (0.131)		-1.995*** (0.189)	0.939*** (0.022)	3.086*** (0.288)
Observations	347	347	347	347	347	347
Adjusted R ²	0.033		-0.297		0.385	
Log Likelihood		-222.083		-127.562		-82.778
Akaike Inf. Crit.		454.167		265.124		175.555

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 3 presents the complete testing results of the three sub-hypotheses. As indicated in the table, the correlation between having political implications and providing solid evidence is statistically significant in both models. For a refuted rumor that has political implications, it is 15 percent more likely to be refuted with solid evidence. And the logistic regression results demonstrate that all else being equal, the log odds for the Chinese government to refute rumors that have political implications with solid evidence in rumor rebuttal increases by 0.79. Figure 5 also demonstrates that the predicted probability to refute rumor with no political with solid evidence is about 20 percent while exceeding 50 percent when it comes to refuting rumors with political implication with solid evidence. These results suggest that the Chinese government is cautious about increasing benefits of conducting rumor rebuttal by raising persuasiveness and credibility when refuting rumors with political implications. However, such correlation cannot be identified between having political implications and mentioning legal punishment or referring to original rumors, indicating that deferring future rumor spreading with punishment or avoiding reference to original rumor is not associated with refuting rumors with political implications.

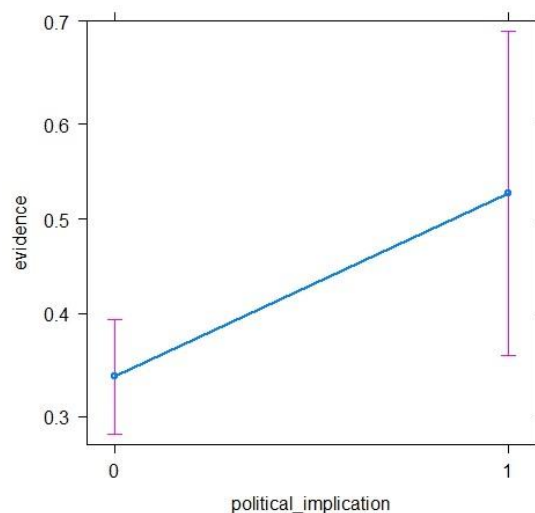


Figure 5: Predicted Probability of Providing Solid Evidence Varied by Having Political Implication or not

In addition, the regression results in Table 3 also show that being related to Wuhan/Hubei and to foreign agents are negatively correlated with referring to original rumors (see Appendix D for detailed illustration). This indicates that when refuting a rumor that is related to Wuhan or Hubei or foreign organizations or individuals, the Chinese government is likely to avoid direct reference to original rumors to reduce the repetition cost.

Figure 6 demonstrates the general difference between refuted and censored posts in terms of word frequencies. Among the refuted posts (wordcloud on the left), Wuhan, virus and pandemic are the top three mentioned words, followed by mask, doctor, pneumonia, information, rumor, infection, people, staff, discover, fake, corona, job. When it comes to the censored posts (wordcloud on the right), while the top two mentioned words (Wuhan and virus) are identical, other frequently mentioned words include center, supplies, university, China, difficult, thesis, candle, eight. Comparing these two wordclouds, we can find some slight distinction: the refuted posts focus more on general things such as the virus, infection, precautions, medical resources and information whereas the censored posts cluster around things that are more specific such as places (center and university), individuals or issues such as the eight “whistleblower” doctors, thesis publishing, and lack of medical supplies. Moreover, despite the fact that the number of censored posts is much bigger than the refuted posts, to come up with two wordclouds that includes similar number of words (about 50), the minimum word frequency in the censored wordcloud (75) is smaller than the minimum word frequency in the refuted wordcloud (100). This difference suggests that censored information may be more centered around some specific issues than refuted posts.

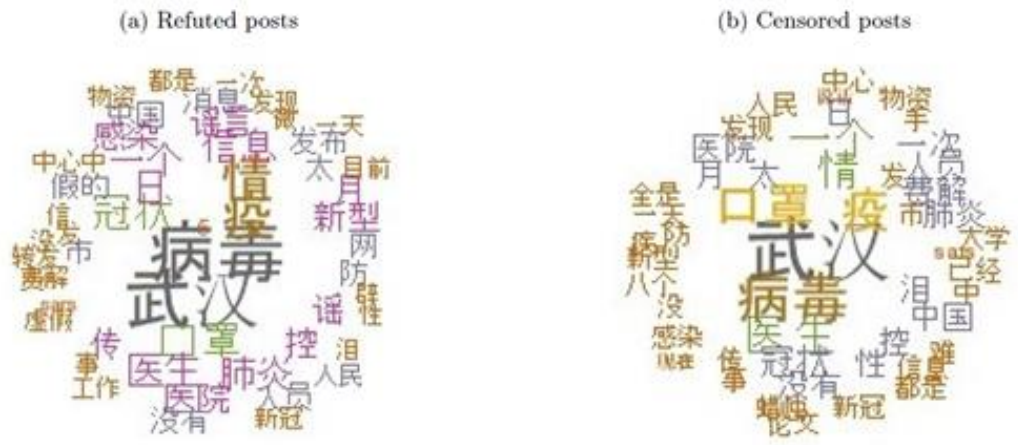


Figure 6: Wordclouds for Refuted and Censored Posts

8. Discussion

The discussion of political communication choice in authoritarian regimes should be situated in the broader literature about information gathering and control. Many existing studies have focused on authoritarian government's solution to the Dictator's Dilemma, the need for precise knowledge about the situation, but having no mechanism to gather such information, by encouraging political participation and demonstrating responsiveness to citizens' preference and grievances through consultative mechanisms (Magaloni 2006; Svobik 2012; Malesky and Taussig 2019; Lorentzen 2014; Egorov, Guriev, and Sonin 2009; Dimitrov 2014; Morozov 2012). In China, many researchers have found that formal institutions are also used by the government to gather information about citizens' needs which are incorporated in the policy-making process to strengthen support for the regime (He and Warren 2011; Distelhorst and Hou 2017; Jiang, Meng, and Zhang 2019). However, some researchers have identified government responsiveness as conditional (Truex 2017) on level of government (Chen, Pan, and Xu 2016), perceptions of state-society antagonism (Meng, Pan, and Yang 2017), preference heterogeneity of the mass public (Chen and Xu 2017b), political discourse (Li, Liu, and Meng 2019), and even "the wisdom of the CCP elites and local leaders" (He and Warren 2011, 283). These factors determine whether government officials are incentivized to encourage public communication and respond to citizens' needs based on the information gathered.

In authoritarian regimes, information control is similar to political responsiveness in that it is also highly selective and conditional on factors such as collective action potential (King et al., 2013, 2014), criticism of the state (Gueorguiev and Malesky, 2019), and social tension (Lorentzen, 2014). All these studies above suggest that institutional design of collecting and controlling information simultaneously is possible in that in normal times when there is no perceived danger, the consultative information gathering mechanism serves the purpose of

demonstrating responsiveness and increasing regime popularity and legitimacy while the information controlling mechanism also helps strengthen support and demonstrate regime strength. However, in times of crisis, both mechanisms work to silence the “undesirable” voices: the information reduces communication channels while information controlling mechanism deletes the undesirable information.

The empirical analysis in this research verifies the institutional design of an authoritarian government’s using political responsiveness and information control simultaneously to manage a public health related crisis. It shows that the Chinese government is cautious about political implications when faced with an exclusive choice between responding to and deleting undesirable information: rebuttal is more likely to take place for rumors with no political implication; and, for those refuted rumors that have implications, censorship is also adopted. The communication choice as such is based on a cost and benefit calculation of adopting each method in times of the COVID crisis. This study shows that the trade-off of choosing different communication methods is also contingent. In China, for example, the outbreak has drawn tremendous social complaints and political criticism due to rising infection and death as well as increasing exposure of incompetent governance and corrupted officials or institutions in the early stage of the pandemic.¹ Consequentially, the social need of accurate information about the virus as well as official response to (local) government incompetence became urgent and undeniable,² which increased the benefit of conducting rumor rebuttal by adding to government responsiveness and information transparency. Meanwhile, the cost of conducting censorship was also magnified due to significant social distrust and grievances. Therefore, the COVID case can be regarded as a most-likely case

¹ Rudolph, Josh. 2020. “CORONAVIRUS CENSORSHIP AND SPIN DRAW PUBLICBACKLASH.” Retrieved from <https://chinadigitaltimes.net/2020/02/coronavirus-censorship-and-spin-draw-public-backlash/>.

² Some went further as to demand accountability, such as Fang Fang. For further information, please see <https://www.nytimes.com/2020/04/14/world/asia/coronavirus-china-fang-fangauthor.html>.

in which more official responses such as rebuttal should occur than normal situation. However, rumors with political implication are still considered as “an elephant in the room” and are excluded in the COVID rumor communication. In this sense, the selective rumor rebuttal not only demonstrates government’s explicit responsiveness to social needs for accurate information, but signals about what kind of information is off-limits in an implicit way (by not responding) as well.

In addition, the empirical results of this study have also verified that different from rumor communication in democracies which mainly focuses on persuasiveness and credibility, the communication calculation of pros and cons from an authoritarian government’s perspective is more complicated. Having both the means and incentives to manipulate information, the selective rumor rebuttal in authoritarian regimes is essentially about information control. Only when refuting rumors with political implications can persuasiveness marked by providing solid evidence finally takes place.

9. Conclusion

This study aims to fill in the void of existing literature about non-exclusive choice of political communication methods in authoritarian countries by distinguishing between content and political implication. I propose that an authoritarian government chooses to respond to a rumor only when the benefit of rumor rebuttal exceeds the cost of repeating political implications denoted by the rumor. The empirical results indicate that during the COVID-19 outbreak, the Chinese government chooses to refute rumors that have no political implications. When refuting rumors with political implications, censorship is also adopted. Moreover, the Chinese government is cautious about increasing benefits of conducting rumor rebuttal by providing solid evidence to raise persuasiveness and credibility when refuting rumors with political implications. While situated in a larger literature about information politics and political communication in authoritarian regimes, these findings, which are based on a crisis scenario, can be regarded as a most likely case in which government responsiveness is still highly selective by excluding undesirable information that has political implications.

However, I do acknowledge that these findings are only suggestive since there is no identification strategy in the empirical testing. Future research can continue with the exploration of causal inference about the relationship between having political implication and choice of communication methods. Also, most coding and matching of this study were completed by hand and non-text information such as emoji or video clip was not systematically studied due to technical restriction. For further exploration, advanced techniques such as machine learning can be used and adapted to expand this study to a larger scale. Moreover, since I only collected direct rumor rebuttal from limited city-level and national-level government Weibo accounts, it is highly possible that (1) more rumor rebuttals are conducted at higher (e.g., provincial level) or lower

level (e.g., county-level), and (2) more rumor rebuttals are conducted in a “soft” way without appearing as rumor rebuttal. The current data, the rebuttal data in particular, is highly unbalanced in terms of geographical distribution (as demonstrated by Figure 3 and Figure 7 in Appendix A). Although I have added city fixed or random effect in my testing, some cities are still underrepresented in my data collection. Moreover, since censorship data does not have source or location information, it is impossible for me to control city-level unobserved heterogeneity in tests that involve censorship (hypothesis 1).

In addition, given that the Provisions on Governance of Network Information Content came into effect on March 1, 2020 as well as the observed changing frequency count in Figure 3, future research can also study the discontinuity with regard to government choice of communication method before and after some critical events such as the provisions.

At the end of this article, it is worth clarifying that since the primary focus of this study is rumor rebuttal instead of censorship which has been the topic of authoritarian government communication for a while, the theory and hypotheses of this study may seem to suggest that censorship functions as a sub-method that complements rumor rebuttal. However, such framing only aims to stress the non-exclusiveness of multiple communication methods from the perspective of one understudied method. Therefore, while this research studied rebuttal plus censorship among refuted posts, future research can continue with a study about rebuttal plus censorship among censored posts. The essential purpose of this study is to verify that different communication methods including rebuttal and censorship can be conducted simultaneously to achieve the same purpose in authoritarian regimes.

Appendix A

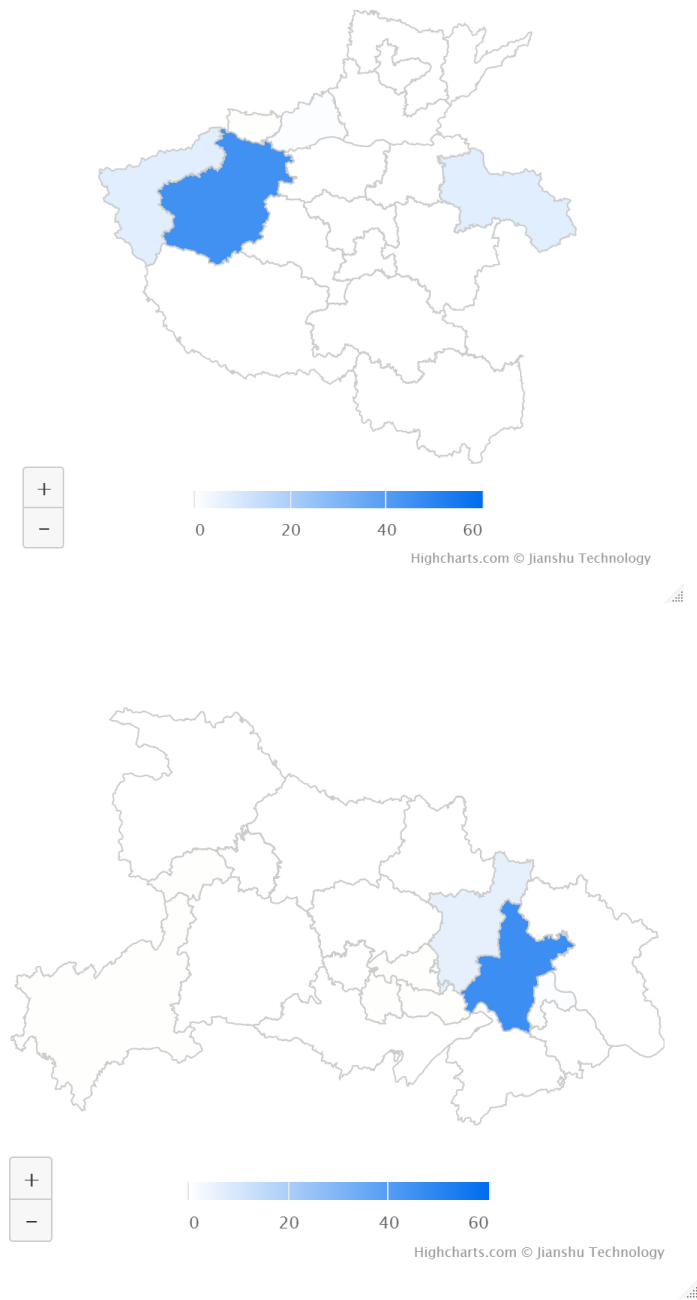


Figure 7: City-level Variations in Numbers of Refuted Posts: Taking Henan Province (up) and Hubei Province (down) as Examples

Appendix B

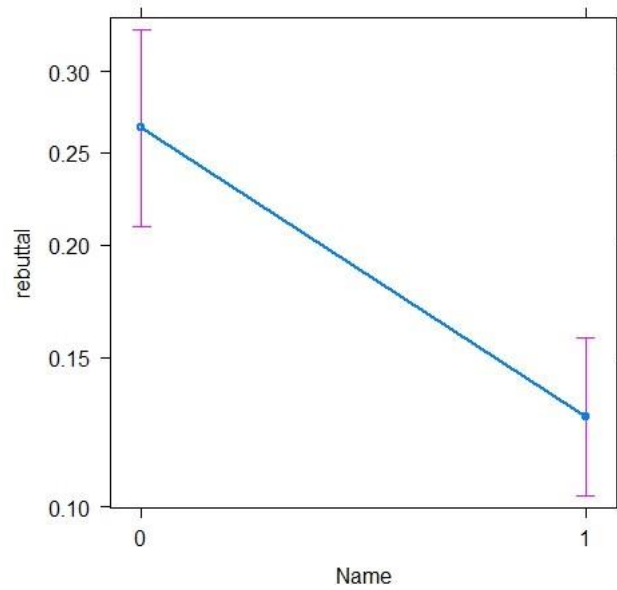


Figure 8: Predicted Probability of Being Refuted Varied by Mentioning Political Names or not

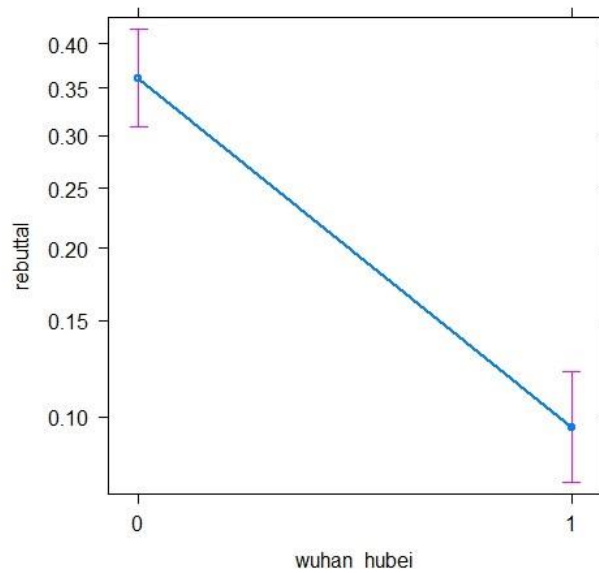


Figure 9: Predicted Probability of Being Refuted Varied by Being Related to Hubei/Wuhan or not

Appendix C

Table 4: Collinearity Diagnostics of Independent Variables

Variables	Tolerance	VIF
Having Political Implications	0.512955	1.949489
Mentioning Names of Political Agents	0.648956	1.540937
Related to Hubei/Wuhan	0.721982	1.385077
Related to Foreign Agents	0.971273	1.029576

Table 5: Results of Hausman Tests (Hypothesis Testing 2)

	<i>Both Refuted and Censored</i>
P-value	0.00
Preferred Model	Fixed Effect

Table 6: Results of Hausman Tests (Hypothesis Testing 3)

	<i>Providing Solid Evidence</i>	<i>Mentioning Legal Punishment</i>	<i>Referring to Original Rumor</i>
P-value	0.97	0.00	0.45
Preferred Model	Random Effect	Fixed effect	Random Effect

Appendix D

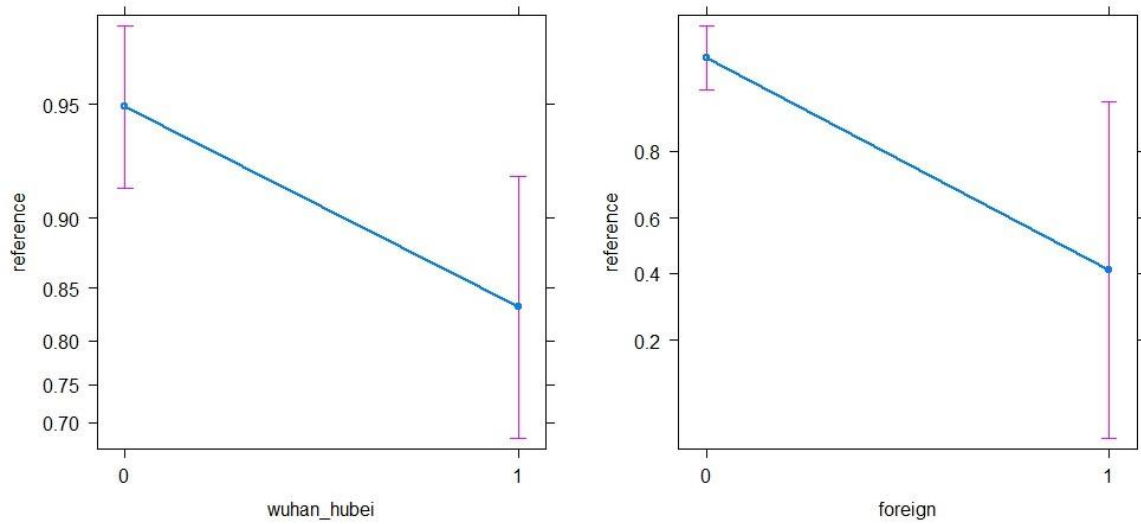


Figure 10: Predicted Probability of Referring to Original Rumor in Rebuttal Varied by Being Wuhan/Hubei-Related (left) and Foreign-Related (right) or not

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