The Rise of China’s Zhao Lijian Diplomacy: A Time Series Analysis

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Abstract

China’s wolf warrior diplomacy has attracted extensive attention since 2020. One of the most prominent “wolf warriors” is Zhao Lijian, China’s Ministry of Foreign Affairs spokesperson. Based on weekly Google Trends datasets between August 21, 2016 and August 8, 2021, this study provides a quantitative description of the development of Zhao Lijian diplomacy. Employing Granger causality tests and autoregressive distributed lag models, this study finds that Zhao Lijian diplomacy is part of China’s wolf warrior diplomacy. Most importantly, COVID-19 may be the only factor that has driven the rise of Zhao Lijian diplomacy. This study contributes to academia by presenting a new quantitative approach to international relations studies and contributes to our understanding of China’s foreign policy.

Keywords

China – wolf warrior diplomacy – Zhao Lijian – China threat – nationalism – COVID-19 – Google Trends

1 Introduction

China’s wolf warrior diplomacy has attracted worldwide attention recently. According to Liu (2021a), for example, in March 2021, Yang Jiechi, the highest-ranking Chinese diplomat, delivered a 16-minute lecture about America’s racial problems and democratic failings during the US-China summit in Alaska. China also sanctioned 10 EU individuals and four entities. Mitchell (2020) argued that 2020 was a year of “wolf warrior” for China. Wolf warrior diplomacy,
named after the Chinese action movie series *Wolf Warrior*, is defined as the
new offensive approach adopted by Chinese diplomats to defend China's
national interests, often in confrontational ways (Zhu, 2020). The most famous
“wolf warrior” is Zhao Lijian, a spokesperson for China's Ministry of Foreign
Affairs (Shepherd, 2020).

Mr. Zhao is currently the deputy director-general of the Chinese Ministry
of Foreign Affairs Information Department, responsible for releasing infor-
mation on China's major diplomatic events and stating China's foreign policy.
Mr. Zhao became the spokesperson for China's Ministry of Foreign Affairs on
February 24, 2020. He became notable while serving in Pakistan for his Twitter
outbursts (Churchill, 2020). As of August 2021, Mr. Zhao has around 1 million
Twitter followers. Mr. Zhao was called “the most interesting diplomat in the
world these days” and “the combative, bombastic, frankly Trumpy voice of the
People's Republic of China on Twitter” (Smith, 2019). One of Mr. Zhao's recent
controversies is his tweet on November 30, 2020, about a doctored photo of an
Australian soldier with his knife pressed against an Afghan child's throat. As a
result, “there had never been a moment before then where the entire national
(Australian) conversation, from the prime minister's courtyard to the subur-
ban barbecue, was about China's offensive, coercive diplomacy” (Palmer, 2021).
Using the case of Mr. Zhao's Twitter account, Cappelletti (2019) explored a new
role for the Chinese state in shaping China's image abroad. “Armed with just a
Twitter account,” Palmer (2021) argued that Mr. Zhao had “remade Beijing's
diplomacy for a nationalistic era.”

Unlike previous Chinese foreign policy studies, which are mainly conceptual/
qualitative analyses, by using Google Trends search results from August 21, 2016
to August 8, 2021, this study creatively creates a high-frequency weekly data
set to measure the narrative of Zhao Lijian diplomacy globally. Accordingly,
time series statistical models are used to investigate several issues concerning
Zhao Lijian diplomacy. In particular, besides a literature review (Section 2) and
an introduction to the data sources (Section 3), how has Zhao Lijian diplo-
macy developed (Section 4)? What are Zhao Lijian diplomacy's relations with
China's wolf warrior diplomacy (Section 5)? Which factors have driven the rise
of Zhao Lijian diplomacy (Section 6)? Finally, Section 7 concludes this paper.

# Literature Review

This research on Zhao Lijian diplomacy is related to studies on China's wolf
warrior diplomacy. There are already some studies on China's wolf warrior
diplomacy. For example, Cheng (2020) looked at this new diplomatic style
against the background of China's foreign policy transition under President Xi Jinping and claimed that China's wolf warrior diplomacy is part of China's more prominent and assertive foreign policy. Zhu (2020) analyzed the causes of China's wolf warrior diplomacy, i.e., China's soaring nationalism, telling the China story, and the personal incentivization of Chinese diplomats. Besides personal incentives for assertiveness, Loh (2020) claimed that President Xi Jinping's foreign policy ambitions and a generational shift at the Ministry of Foreign Affairs should also be accountable. Besides China's soaring nationalism, Chu (2021) claimed that the rising pressure on China is another cause. Brandt and Schafer (2020) examined the role of Twitter in China's wolf warrior diplomacy. Finally, Akçevin (2021) explored the potential impact of wolf warrior diplomacy on China's soft power prospects.

While Chinese officials, such as foreign minister Wang Yi, initially defended China's combative wolf warrior diplomacy (Wu, 2020), recently, some official scholars (Wang, 2021) believe that the wolf warrior diplomacy discourse may be associated with the China threat theory. From the perspective of policy, there may be a structural change in China's wolf warrior diplomacy from 31 May 2021, when Chinese President Xi Jinping said that China should endeavor to “portray an image of a reliable, lovely, respectable China.” According to Liu (2021a), while China's wolf warrior diplomacy significantly increased the perceived China threat level globally early on, Chinese President Xi Jinping's new guidelines have begun to soften China's image. Powers-Riggs and Jaramillo (2022) also argued that China's wolf warrior diplomacy may have gradually softened.

Zhao Lijian diplomacy is related to China's aggressive or assertive style of foreign policy. For example, Zhu (2020) and Mastro (2014) claimed that China's more aggressive or assertive style could be dated back to 2010. Since the leadership transition in China in November 2012, it has been widely observed that China has become more assertive in international affairs (Zhang, 2015). From the viewpoint of quantitative analysis, while Liu (2021a) used the term “wolf warrior diplomacy” to quantitatively measure the assertiveness of Chinese foreign policy, this study utilizes the term “Zhao Lijian” as an alternative approach. Another potential term is “Hu Xijin,” the editor-in-chief of the Global Times, a paper covering international issues under the Chinese Communist Party's official People's Daily, was an early adopter of China's “wolf warrior” rhetoric (Powers-Riggs and Jaramillo, 2022). Another term is “Hua Chunying,” the Director General of the Information Department of China's Ministry of Foreign Affairs and a spokesperson. She once responded to US criticism of China by tweeting, “I can't breathe.”1 The others can be left for future studies.

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1 See https://twitter.com/SpokespersonCHN/status/1266741986396107520 for details.
This study is broadly related to research on China’s foreign policy. Various approaches are proposed to explain China’s foreign policy doctrines, such as the critical international relations framework (Yilmaz, 2016) and the cultural-sociological approach (Jaworsky and Qiaoan, 2021). Semenov and Tsvyk (2021) argued that China’s diplomatic discourse is a multilevel and complicated system. Cai (2020) constructed a comprehensive analytical framework for explaining Chinese foreign policy that listed seven factors: Chinese power, external environment, national/core interests, philosophical traditions, historical experience, Communist ideology, and communist leaders. Based on the framework of Cai (2020), Liu (2021a) conducted a comprehensive empirical study on China’s wolf warrior diplomacy and, in particular, examined the factors that have driven the rise of this phenomenon. Based on weekly Google Trends data from April 2020 to June 2021 and using a cointegration model, Liu (2021a) found that China’s wolf warrior diplomacy was primarily driven by three factors: the development of COVID-19 cases in the rest of the world, excluding China (China’s successful control of COVID-19 has strengthened China’s power), the China threat level around the world (external environment), and China’s nationalism (which is used to reinforce the legitimacy of the ruling party and maintain the Chinese Communist Party’s monopoly over political power). This framework is used to analyze the factors that have driven the rise of Zhao Lijian diplomacy (see Section 6.1 for more details).

3 Data Source

Google Trends (https://trends.google.com/trends/) is a Google product that looks at how popular Google search queries are in different countries/regions and languages. Key features include anonymity, topic classification, and aggregation. While Google Trends offers real-time data for the last seven days, daily data for a limited time, and monthly data for a more extended period, this research uses weekly data. The essential point is that, while monthly data might help level out the sensitivity of relations between variables, these associations may not be based on daily data. Data with a higher frequency may imply more sensitive relations between variables. Because Google handles a significant number of inquiries daily, Google Trends only uses samples of Google searches. Google Trends search results are also normalized for time and location. After normalizing the data, comparing searches across time and locations is feasible. The normalization method is as follows, according to the official Google Trends document: to assess relative popularity, “each data point
is divided by the total searches of the geography and time range it represents”; “the resulting numbers are then scaled on a scale of 0 to one hundred based on the proportion of searches on all topics”; locations with equal levels of interest in a term might have vastly different total search volumes. In a nutshell, the data represent search interest in relation to the highest point on the map for the provided place and time. A score of one hundred means that the phrase is at its most popular, a score of 50 shows that it is half as popular, and a score of 0 indicates that there isn’t enough data to assess the term’s popularity.

Google Trends started in 2004 and became available to the public in 2006. It has been applied in various fields by many studies. In a review article, Jun et al. (2018) conducted a network analysis of six hundred fifty-seven research papers that used Google Trends during 2006–2017 and concluded that Google Trends had been applied in fields such as information systems or computer science, health care, and economics and finance. In communications, Scharkow and Vogelgesang (2011) interpreted Google Trends, which was called Google Insights for Search back then, as a measurement of the public agenda and an alternative to survey techniques. However, its applications in political science and international relations are very limited. In political science, Google Trends is used to predict election/public opinion, but there are some problems with the forecasting ability (Lui et al., 2011). It may be because an internet search is not an expressive act, as answering survey responses is (Mellon, 2013). Liu (2021b) is the first to use Google Trends as a narrative measurement in international relations.

According to Hinchman and Hinchman (1997), narratives are “discourses with a clear sequential order that connect events in a meaningful way ... and ... offer insights about the world and/or people’s experiences of it.” Being different from arguments, which “have premises and conclusions,” narratives contain “beginnings, middles, and ends” (Roe, 1992). Hagström and Gustafsson (2021) conducted a comprehensive review of studies on theoretical and methodological issues regarding narratives in international relations. However, the existing studies did not resolve the issue of how to measure a narrative. While many studies have examined the construction of a narrative, one crucial issue is the effect of the narrative on the general public. According to the media system dependency theory (Ball-Rokeach and DeFleur, 1976), the media is one of the primary sources of knowledge for non-specialists regarding international affairs. For example, we know the China threat mainly due to media reports. More reports or analyses of the China threat may be the result of a higher intensity of the China threat, which could then result in more search activities on the internet. This is the rationale for using Google search activities
to measure a narrative. While a narrative is closely associated with the quality and/or frequency of articles/viewpoints, they are not perfectly correlated. Google Trends may be able to measure the actual and aggregated impact of international events on the general public through policy, media coverage, and an individual’s issue salience. Or as shown in Sections 4.1, 6.2.2 and 6.2.3, Google Trends results are like the measurement of the agenda-setting effect, “(which) is not the result of receiving one or a few messages but is due to the aggregated impact of a very large number of messages, each of which has a different content but all of which deal with the same issue” (Dearing, Rogers, and Rogers, 1996).

4 Development

Although Mr. Zhao opened his Twitter account in 2010, Google Trends search results were almost zero before 2016. This is confirmed by Palmer (2021), who found that his Twitter account sat almost entirely dormant between 2010 and 2015. As a result, the period from August 21, 2016 to August 8, 2021 was chosen. Also, it is noted that Google Trends differentiates between terms and topics. Search terms show matches for all terms in the query language. Topics are a group of terms that share the same concept in any language. For example, when we input “zhao lijian,” the topic “Zhao Lijian: Spokesperson for the Ministry of Foreign Affairs of the People’s Republic of China” was automatically displayed. In this study, the latter (topic) was chosen. Below, Figure 1 shows the search results for the key phrase “Zhao Lijian,” interpreted as the volume of the narrative of Zhao Lijian diplomacy worldwide.

Figure 1 shows that the first momentum of the Zhao Lijian diplomacy happened in the week of October 16, 2016. It was primarily related to Mr. Zhao’s interaction with his Twitter followers in Pakistan. For example, Mr. Zhao asked where Pakistan’s Thakot and Havilian are. Mr. Zhao also tweeted his wishes for and commented on the China–Pakistan Economic Corridor project (CPEC), which is one of the most ambitious components of China’s Belt and Road Initiative (Notezai, 2021). Palmer (2021) argued that Mr. Zhao was especially savvy about cultivating his audience and posting constantly about the CPEC when he was based in Pakistan.

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2 See https://twitter.com/zlj517/status/7862909856972032 for details.
3 See https://twitter.com/zlj517/status/78630205639670624?lang=en for details.
The most significant peak in the narrative of Zhao Lijian diplomacy happened in March 2020, particularly in the week of March 15. The surge in search activities is primarily related to Mr. Zhao’s claim that the US army might have started the coronavirus epidemic,4 which was covered extensively by the worldwide media, such as Austin and Smith (2020), Broderick (2020), Huang, J. (2020), Myers (2020), Scott and Marlow (2020), Sherwell (2020), Westcott and Jiang (2020a), and Zheng (2020). The roots and background of Mr. Zhao’s rise were also analyzed by Reuters (2020).

The second-largest peak of Zhao Lijian diplomacy happened in the week of November 29, 2020. The surge in search activities is primarily related to Mr. Zhao’s tweet about a doctored photo of an Australian soldier with his knife pressed against an Afghan child’s throat, which attracted extensive media coverage and fierce responses from the Australian government. For example, Wolfe (2020) argued that Zhao Lijian launched an attack on Australia. Maiden (2020) noted that this sparked outrage across Australia. Rej (2020) argued that this could seriously aggravate the tensions between China and Australia. As a response, Australia summoned the Chinese ambassador (Lo and Wong, 2020) and demanded China apologize (BBC News, 2020; Hollingsworth, 2020), which

4 See https://twitter.com/zlj517/status/12381189882866823 for details.
is thought to be highly unlikely (Chamas, 2020). Ison (2020) explored the background of Mr. Zhao. Piotrowski (2020) claimed that Mr. Zhao is well known for his "wolf warrior" diplomacy.

As discussed in the introduction, Zhao Lijian diplomacy can be seen as a proxy variable for measuring the assertiveness or aggressiveness of Chinese foreign policy. Analyzing the spikes in the data demonstrates the correlation between the two.

5 Relations with Wolf Warrior Diplomacy

In this section, the first variable, wolf warrior diplomacy, is introduced in Section 5.1. Then, the Granger causality tests are conducted to examine the causal relations between Zhao Lijian diplomacy and the wolf warrior diplomacy in Section 5.2.

5.1 Variable: Wolf Warrior Diplomacy

According to Liu (2021a), China’s wolf warrior diplomacy primarily started in April 2020, which is consistent with the results presented in Figure 2. Below, Figure 2 shows the search results for the key phrase “wolf warrior diplomacy,” interpreted as the volume of the narrative of wolf warrior diplomacy worldwide.

Figure 2 shows that the largest peak of the narrative of China’s wolf warrior diplomacy happened in the week of May 17, 2020, followed by the weeks of May 24 and May 31. In May 2020, the Chinese Foreign Ministry adopted an aggressive or assertive new stance to increase China’s global influence. For example, according to Wong and Deng (2020), China’s ambassador in Paris threatened to battle France if China’s interests were hurt, then fought France publicly over the COVID-19 pandemic. The Chinese embassy in Sri Lanka bragged about China’s pandemic response. After a squabble with the city’s mayor over Taiwan, China canceled a nationwide tour by the Prague Philharmonic Orchestra. When Chinese foreign minister Wang Yi was asked whether China had abandoned its low-key approach in light of the confrontational stance adopted by some diplomats, Wang defended China’s combative wolf warrior diplomacy, saying that China would stand firm in defending China’s national interests and combating smears (Wu, 2020). This new wolf warrior diplomacy attracted extensive media coverage, such as Westcott and Jiang (2020b), Williams (2020), and Huang, K. (2020b). Besides the factor of COVID-19 (Landale, 2020), Zhu (2020) also analyzed other factors, including soaring nationalism, behind the rise of
wolf-warrior diplomacy. A few articles also analyzed its implications, such as the revelation of China’s ambitions (Hille, 2020), China’s power and insecurity (Kausikan, 2020), awakening Europe (Baker and Emmott, 2020), and the potential backfire (The Economist, 2020).

The second-largest narrative peak on China’s wolf warrior diplomacy happened in the week of November 29, 2020, culminating the following week of December 6. The search activities are primarily related to Mr. Zhao’s doctored photo of Australian soldiers (see Section 2) and the subsequent analysis. For example, Bloomberg News (2020a) argued that Mr. Zhao’s comments and picture offered a blunt introduction to wolf-warrior diplomacy. Bloomberg News (2020b) argued that by slamming Australia, China’s “wolf warrior” diplomats won fans at home. Winning (2020) argued that Mr. Zhao’s tweet is the latest example of China’s combative diplomatic approach. Using the example of Mr. Zhao, Zeng (2020) argued that Twitter had become a new battleground for China’s “wolf warrior” diplomats.

In terms of the time of search peaks, Liu (2021a) provides a slightly different description. There may be two reasons: first, the periods are different. Second, different data samples were retrieved from Google Trends even for the same period.
5.2 **Granger Causality Tests**

Many analyses claim that Mr. Zhao is one of the most prominent “wolf warrior” diplomats (Shepherd, 2020; Callick, 2020). It is then hypothesized that the narrative of Zhao Lijian diplomacy is part of the wolf warrior diplomacy narrative. The methodology employed is Granger causality tests (Granger, 1969). The Granger causality test determines how much of the current $y$ can be explained by past values of $y$ and whether incorporating lagged values of $x$ can boost the accuracy of the explanation. The Granger causality test answers the essential question of whether $x$ helps forecast $y$.

Figure 2 shows that China’s wolf warrior diplomacy started in the week of April 12, 2020. The period between April 12, 2020 and August 8, 2021 was chosen for the Granger causality tests. As all variables are time-series data, the stationarity needs to be checked. The Augmented Dickey-Fuller tests (not reported but available upon request) show that both $ZLJ$ (the Zhao Lijian diplomacy measured with Google Trends data) and $WWD$ (the wolf warrior diplomacy measured using Google Trends data) are stationary. Below, Table 1 shows the results.

Table 1 shows that $ZLJ$ can Granger cause $WWD$ at lag orders 1 and 2, but not the other way around. It means that the narrative of Zhao Lijian diplomacy provides information content to formulate the wolf warrior diplomacy narrative. This conclusion is consistent with what has been observed. For example, as discussed in Section 4, the second-largest peak of the Zhao Lijian narrative happened in the week of November 29, 2020, and the surge in search activities was primarily related to Mr. Zhao’s tweet about a doctored photo of an Australian soldier with his knife pressed against an Afghan child’s throat. One week after that, i.e., the week of December 6, 2020, the narrative of China’s wolf warrior diplomacy reached another peak. As discussed in Section 4.1,

| Null Hypothesis | Lag Order 1 | Lag Order 2 | Lag Order 3 | Lag Order 4 | Lag Order 5 |
|-----------------|-------------|-------------|-------------|-------------|-------------|
| $ZLJ$ does not | 2.2%        | 5.2%        | 12.5%       | 25.8%       | 31.5%       |
| Granger Cause   | $WWD$       |             |             |             |             |
| $WWD$ does not | 75.5%       | 91.0%       | 98.3%       | 99.5%       | 99.8%       |
| Granger Cause   | $ZLJ$       |             |             |             |             |

$ZLJ$ is the Zhao Lijian diplomacy measured with Google Trends data (see Figure 1). $WWD$ is the wolf warrior diplomacy measured with Google Trends data (see Figure 2). Time period: April 12, 2020–August 8, 2021; Obs: 65–69.
beyond the Zhao Lijian phenomenon, many comments focused on the broad wolf warrior diplomacy adopted by China.

6 Causes

This section analyses the causes of China’s Zhao Lijian diplomacy. First, theoretical grounds are analysed. Second, three hypotheses are proposed regarding the factors that have potentially caused the development of Zhao Lijian diplomacy. Third, Granger causality tests are conducted to test the causal relations. Fourth, an ARDL (autoregressive distributed lag) model is utilized. The framework of this section is based on Liu (2021a).

6.1 Theoretical Grounds

Cai (2020) constructed a comprehensive analytical framework for explaining Chinese foreign policy, including a total of seven factors, such as Chinese power, China’s external environment, China’s national/core interests, China’s philosophical traditions, China’s historical experience, Communist ideology, and Chinese communist leaders. Regarding the factor of Chinese power, according to Cai (2020), China possesses four types of power, i.e., geographical size, population, military capabilities, and economic capacity. The changes regarding geographical size, population, and military capabilities before and after COVID-19, if any, may be insignificant. The exception is China’s economic capacity. During the sample period of this study, i.e., before August 2021, while the Chinese economy became weaker than before this pandemic, it became stronger relative to the rest of the world, which lagged behind China in terms of containing COVID-19 and reopening. The performance of the Chinese economy may be another factor contributing to the rise of Zhao Lijian diplomacy.

Regarding China’s external environment, as Cai (2020) argued, Chinese foreign policy has been primarily defined and influenced by its basic external condition of an unfavorable geographical and geopolitical environment. After the outbreak of COVID-19 and its spread to the rest of the world, China’s image has been severely hurt. As a result, the China threat perception overseas has increased (see Section 6.2.2). As a response, China’s foreign policy has become assertive, i.e., Zhao Lijian diplomacy. Therefore, the development of the China threat in the world may be associated with China’s Zhao Lijian diplomacy.

Regarding China’s national/core interests, according to Cai (2020), China’s top foreign policy objective is to maintain its political system. As argued by Florian Schneider, nationalism is a central part of the CCP’s legitimation strategy (Huang, K., 2020a). Yang and Chen (2021) also argued that nationalism (together with globalism) is used to reinforce the legitimacy of the ruling party.
China’s nationalism has risen during the COVID-19 period (Jaworsky and Qiaoan, 2021). Zhao Lijian diplomacy may also be associated with rising nationalism.

Regarding other factors, such as China’s philosophical traditions, historical experience, and Communist ideology, their changes before and after COVID-19, if any, may be insignificant or neglectable. The last is the factor of Chinese communist leaders. The difference in the personality traits and leadership styles before and after COVID-19, if any, may be insignificant or neglectable too. Liu (2021a) also discussed a few other variables; however, from the viewpoint of quantitative analysis, the changes in these factors during the sample period are insignificant, so they are barely variables.

6.2 Independent Variables

As discussed in Section 6.1, three factors may have caused the rise of Zhao Lijian diplomacy, i.e., China’s economic performance, the China threat, and China’s nationalism. Regarding economic performance, as weekly economic indicators are rare, it would be better to find a proxy variable. In this part, the development of COVID-19 is used as a proxy variable for measuring economic performance. The rationale is that a higher growth rate of COVID-19 cases means a greater negative effect on the economy, thus worse economic performance. Based on cross-country datasets, Oliu-Barton (2021) concluded that in the early stage of the pandemic, countries that consistently aim for elimination have generally fared better than countries that opt for mitigation.

On the one hand, after the initial period between December 2019–March 2020, this disease was stabilized in China and was generally under control during the sample period, i.e., before August 2021. On the other hand, however, at the same time, the development of COVID-19 in the rest of the world (excluding China) was very rapid. Notably, the US and Europe lagged behind China in terms of containing this epidemic during the sample period of this study. Therefore, the first hypothesis is that the development of COVID-19 in the rest of the world (excluding China) may be associated with China’s Zhao Lijian diplomacy.

As discussed in Section 6.1, the second hypothesis is that the development of the China threat in the world may also be associated with Zhao Lijian diplomacy. Finally, the third hypothesis is that the rise of China’s nationalism may also be associated with Zhao Lijian diplomacy. The independent variables representing these three hypotheses are discussed below.

6.2.1 COVID

Figure 3 shows the differences in accumulated COVID-19 case growth rates between the rest of the world (excluding China) and China. This variable can
Figure 3  Growth rates differences between the rest of the world (excluding China) and China in terms of weekly accumulated COVID-19 cases. (A) February 16, 2020–May 3, 2020; (B) May 10, 2020–August 8, 2021
Source: https://ourworldindata.org/grapher/
cumulative-covid-cases-region
be regarded as a proxy for measuring economic performance. A higher value means better implementation of China's COVID-19 response and, as a result, better performance of the Chinese economy (which also means worse performance for other countries' economies).

The reason for differentiating Figure 3A and Figure 3B is to clarify the result. The initial data items are so outsized that the latter data items are almost indistinguishable if they are put together in one figure. Figure 3 shows the differences in weekly accumulated COVID-19 case growth rates for China vs. the rest of the world. It shows that although the gap has been narrowed, China had continuously performed better in terms of containing the spread of this disease during the sample period. From this, many Chinese officials believed that “the East is rising while the West is declining” (Zheng, 2021). As Liu (2021a) argued, this probably incentivized Chinese diplomats, including Mr. Zhao, to be more assertive.

6.2.2 The China Threat

Figure 4 shows the search results for the key phrase “China threat,” which is interpreted as the volume of the worldwide China threat narrative.

Figure 4 shows that the largest peak in the China threat narrative happened in the week of May 30, 2021. This week, China warned of a "nuclear
showdown” with the US (Graham, 2021). The second-largest peak happened in the week of May 10, 2020. The surge in search activities is related to multiple events. First, Chinese influence on Australia and China’s threat of imposing tariffs on Australian barley have attracted extensive coverage and analysis, such as by Coorey and Thompson (2020), and Fernando and Brinsden (2020), White (2020), and Searight (2020). Second, China’s increasing military threat to Taiwan is also a focus (France 24, 2020; WION, 2020). Third, China’s military threat to the US and the latter’s response were analyzed by O’Hanlon (2020) and Lague (2020). Also, China’s hacking poses a “significant threat” to the US COVID-19 response (Dvidson, 2020), culminating with Roque’s (2020) conclusion that China is a threat to Western democracies.

6.2.3 Chinese Nationalism
Like Liu (2021a), the variable *Nationalism* is also retrieved from Google Trends search results. It is defined as the volume of China’s nationalism narrative in the world. It can be regarded as a proxy variable measuring the nationalism level in China from the viewpoint of the English-speaking world. The key phrase is “China nationalism.” Another key phrase, “Chinese nationalism,” generates fewer results with lower quality. Figure 5 shows the search results for the key phrase “China nationalism.”

![Search results for “China nationalism,” Google trends weekly data, February 16, 2020–August 8, 2021, worldwide](image)

**Figure 5** Search results for “China nationalism,” Google trends weekly data, February 16, 2020–August 8, 2021, worldwide
Figure 5 shows that the largest peak of China’s nationalism happened in the week of April 26, 2020, followed by the week of April 19, 2020. According to Liu (2021a), the surge in China’s nationalism is primarily related to COVID-19. For example, it was argued that Chinese hyper-nationalist online attacks on Fang Fang, whose “Wuhan Diary,” a chronicle of everyday life in the city during the COVID-19 outbreak, was greatly opposed by Chinese nationalists, had parallels to the Mao era. In addition, a Twitter war centered on a Thai idol named Bright revealed a new trend in Chinese nationalism. China’s success in containing COVID-19 gave rise to an increasingly strident blend of patriotism, nationalism, and xenophobia at a pitch that has not been seen in decades. The second-largest peak of China’s nationalism happened in the week of May 2, 2021, with the surge in search activities being related to multiple events (details are not reported but are available upon request).

6.3 Granger Causality Tests

As discussed previously, COVID-19, the China threat, and rising nationalism are the factors that have driven the rise of China’s wolf warrior diplomacy. It is possible that they also drove the rise of Zhao Lijian diplomacy. The Augmented Dickey-Fuller tests (not reported but available upon request) show that all variables, including \(ZLJ\) (the Zhao Lijian diplomacy measured with Google Trends data), \(China\ Threat\) (the China threat narrative measured with Google Trends data), and \(Nationalism\) (the level of China’s nationalism measured with Google Trends data), except for \(COVID\) (the differences in week-on-week growth rates of accumulated COVID-19 cases in the world excluding China and China), are stationary. Correspondingly, the log term of \(COVID\) is adopted. Table 2 shows the results of the Granger causality tests.

Table 2 shows that \(China\ Threat\) cannot Granger cause \(ZLJ\). Unlike Liu (2021a), who found that the China threat drives the rise of China’s wolf warrior diplomacy, this study shows that China’s external environment, i.e., the China threat, does not play a significant role in driving Zhao Lijian diplomacy. Table 2 also shows that China’s nationalism plays an insignificant role in driving Zhao Lijian diplomacy (if Chinese sources are used, this conclusion remains the same. Results are not reported but are available upon request). This conclusion is different from that of Liu (2021a), who argued that rising nationalism in China is a crucial factor that has driven the rise of China’s wolf warrior diplomacy. Table 2 also shows that \(COVID-19\) plays a significant role in driving Zhao Lijian diplomacy. This conclusion is further examined based on a formal regression conducted below.
As discussed in Section 6.3, it seems that COVID-19 is the only factor that may have caused the rise of Zhao Lijian diplomacy. Correspondingly, the ARDL (autoregressive distributed lag) model is used to perform a formal regression analysis. ARDLs (autoregressive distributed lag) are standard least squares regressions that include lags of both the dependent variable and explanatory variables as regressors. COVID is defined as the difference in week-on-week growth rates of accumulated COVID-19 cases in the world excluding China and China (see Figure 3). China Threat is the China threat narrative measured with Google Trends data (see Figure 4). Nationalism is the level of China’s nationalism measured with Google Trends data (see Figure 5). Time period: February 16, 2020–August 8, 2021; Obs: 73–77.

### Table 2: Granger causality tests: the relations between ZLJ and China Threat and the relations between ZLJ and Nationalism

| Null Hypothesis                        | Lag Order 1 | Lag Order 2 | Lag Order 3 | Lag Order 4 | Lag Order 5 |
|----------------------------------------|-------------|-------------|-------------|-------------|-------------|
| log_{10}(COVID) does not Granger Cause log_{10}(ZLJ) | 0.1%        | 0.6%        | 0.1%        | 4.6%        | 34.4%       |
| China Threat does not Granger Cause ZLJ | 49.0%       | 59.3%       | 65.0%       | 77.5%       | 64.1%       |
| Nationalism does not Granger Cause ZLJ | 78.9%       | 58.9%       | 72.8%       | 62.8%       | 37.9%       |

ZLJ is the Zhao Lijian diplomacy measured with Google Trends data (see Figure 1). Log_{10}(ZLJ) is the log term of Zhao Lijian diplomacy worldwide. log_{10}(COVID) is the log term of the differences in week-on-week growth rates of accumulated COVID-19 cases in the world excluding China and China (see Figure 3). China Threat is the China threat narrative measured with Google Trends data (see Figure 4). Nationalism is the level of China’s nationalism measured with Google Trends data (see Figure 5). Time period: February 16, 2020–August 8, 2021; Obs: 73–77.

### 6.4 ARDL Model

As discussed in Section 6.3, it seems that COVID-19 is the only factor that may have caused the rise of Zhao Lijian diplomacy. Correspondingly, the ARDL model is used to perform a formal regression analysis. ARDLs (autoregressive distributed lag) are standard least squares regressions that include lags of both the dependent variable and explanatory variables as regressors. COVID is defined as the difference in week-on-week growth rates of accumulated COVID-19 cases in China vs. the rest of the world. Log_{10}(COVID) is the log term for COVID. It is noted that Liu (2021a) used the growth rates of COVID-19 cases globally, excluding China, rather than the difference. The main reason is that Liu (2021a) used the sample period starting in April 2020, when the new COVID-19 cases in China are almost ignorable. Log_{10}(ZLJ) is the log term for ZLJ.

Figures 1 and 3 show that there may be extreme skewness for COVID and ZLJ, so using log-term will significantly reduce the normal distribution concern. Regarding the choice of lag orders of the dependent variable, using a fixed rather than a dynamic model is due to the concerns about residual correlation issues. At the same time, there may also be multicollinearity problems. Standardizing the variables by subtracting the mean value is one way to reduce structural multicollinearity. Table 3 shows the results.
Omitted variables tests show that the null hypothesis that China Threat and Nationalism are jointly significant is rejected at a 1% confidence level (not reported but available upon request). Also, a series of tests (see Appendix) are conducted to check the model's specifications. Coefficient diagnostics show that the Variance Inflation Factor for COVID's coefficient is just 1.44, indicating that the multilinearity issue can be safely ignored. Residual tests, including correlograms of both standardized residuals and standardized residuals squared, show no serial correlation. While there is still a mild skewness, given the properties of COVID (see Figure 3), this may not be resolved entirely. The heteroskedasticity test shows no existence of heteroskedasticity. The Ramsey Regression Equation Specification Error Test shows no existence of a non-linear functional form (the results of the normality test, heteroskedasticity test, and Ramsey Regression Equation Specification Error Test are not reported but are available upon request). Finally, the adjusted $R^2$ is 0.369, indicating a sizable explanatory power. The model adopted here works well or is, at the very least, acceptable.

Table 3 shows that the coefficient of $\log_{10}(COVID)$ is significantly positive at the 1% confidence level. It means that a positive difference in week-on-week growth rates of accumulated COVID-19 cases for China vs. the rest of the world is significantly associated with Zhao Lijian diplomacy. This result is consistent
with the previous hypothesis. That is to say; when COVID-19 was generally under control in China while the rest of the world struggled to contain COVID-19 during the sample period, this provided incentives for Chinese diplomats such as Mr. Zhao to be more assertive.

7 Concluding Remarks

China’s wolf warrior diplomacy has attracted extensive attention since 2020. One of the most prominent “wolf warriors” is Zhao Lijian. This study uses weekly Google Trends data to examine a series of issues concerning Zhao Lijian diplomacy. The contributions of this study are twofold. First, this study contributes to our understanding of China's foreign policy, including the role of one of its most prominent actors and the relations between many variables. This study also created an index to measure the assertiveness or aggressiveness of Chinese foreign policy. Second, this study presents a new quantitative approach to international relations studies.

Based on weekly datasets from August 21, 2016 to August 8, 2021, this study finds that although Mr. Zhao became known as early as 2016, his popularity surged from February 2020. Mr. Zhao’s most famous events are his claim that the US army might have started the coronavirus epidemic in March 2020 and his tweet about a doctored photo of an Australian soldier with his knife pressed against an Afghan child’s throat in November 2020. Based on weekly datasets from February 16, 2020 to August 8, 2021 and Granger causality tests, this study provides empirical evidence showing that Zhao Lijian diplomacy is part of China’s wolf warrior diplomacy. Most importantly, based on a series of Granger causality tests and an ARDL model, this study finds that COVID-19 may ultimately be the only factor that has driven the rise of Zhao Lijian diplomacy. When COVID-19 was generally under control in China, while the rest of the world struggled to contain COVID-19 from February 2020 to August 2021, this provided incentives for Chinese diplomats such as Mr. Zhao to be more assertive.

From the viewpoint of academia, this study contributes to academia by introducing a new data source that has the potential to generate rich time series data and, as a result, univariate or multivariate time series modeling with high-frequency (monthly, weekly, or daily) data in international relations becomes feasible. This study can be seen as an example of the applications of Google Trends in international relations. Some practical issues need to be carefully considered when applying Google Trends data. For example, the choice of key phrases should be taken carefully. Data validation may be necessary, such
as checking the (a few) peaks to ensure that the content is consistent with the hypothetical meaning. Extra attention should also be paid to those less frequent search terms.

It is noted that the conclusions drawn in this study may be restricted to this particular period, i.e., from 16 February 2020 to 8 August 2021. During this period, China's pandemic control strategy, i.e., the elimination strategy, was generally successful. However, this COVID-zero policy was challenged in November 2021 when China's Omicron variant rapidly developed. As a result, many Chinese cities imposed some form of lockdown (for example, at least 114 million Chinese people were under full or partial lockdown nationwide in early July 2022). The economic costs are much larger than before (for example, China's year-over-year growth rate sharply dropped to just 0.4 percent in the second quarter of 2022). This may discourage rather than encourage China to be more aggressive or assertive. In addition, China's aggressive response to Pelosi's Taiwan visit in August 2022 may be driven by other factors, including Chinese nationalism and the China threat. This topic may be left for future research.

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## Appendix

### Coefficient Diagnostics and Residual Tests

**Table A1** Coefficient diagnostics

| Variable            | Variance Inflation Factors (VIF) |
|---------------------|----------------------------------|
| \( \log_{10}(ZLJ)(-1) \) | 9.814                           |
| \( \log_{10}(ZLJ)(-2) \) | 7.678                           |
| \( \log_{10}(COVID) \)    | 1.440                           |
| \( C \)                | 10.600                          |

**Table A2** Correlogram of standardised residuals

| Autocorrelation | Partial Correlation | AC     | PAC    | Q-Stat | Prob |
|-----------------|---------------------|--------|--------|--------|------|
| . | . | . | 1 | 0.043 | 0.043 | 0.1438 | 0.705 |
| . | . | . | 2 | -0.003 | -0.005 | 0.1445 | 0.930 |
| . | . | . | 3 | -0.048 | -0.047 | 0.3286 | 0.955 |
| | * | . | 4 | -0.173 | -0.170 | 2.8049 | 0.591 |
| | . | . | 5 | 0.010  | 0.024  | 2.8139 | 0.729 |

**Table A3** Correlogram of standardised residuals squared

| Autocorrelation | Partial correlation | AC     | PAC    | Q-Stat | Prob* |
|-----------------|---------------------|--------|--------|--------|-------|
| * | . | * | 1 | -0.079 | -0.079 | 0.4893 | 0.484 |
| . | * | . | 2 | 0.093  | 0.087  | 1.1790 | 0.555 |
| . | . | . | 3 | 0.022  | 0.036  | 1.2178 | 0.749 |
| . | ** | . | 4 | 0.276  | 0.276  | 7.4688 | 0.113 |
| * | . | . | 5 | -0.074 | -0.039 | 7.9281 | 0.160 |