

Dynamic Analysis of Agenda-Setting on the “Belt and Road Initiative” Topic on Twitter from 2013 to 2023

Ning Ning^{1,#,*}, Wong Yu'ou^{1,#,*}

¹*School of Journalism, Renmin University of China, Beijing, China*

[#]*The co-authors contributed equally to this essay.*

^{*}*Corresponding author: nirvananing@ruc.edu.cn*

Keywords: International Communication, China's International Discourse Power, “Belt and Road Initiative”, Media Discourse, Agenda-Setting

Abstract: Gaining the initiative in agenda-setting on international media platforms is crucial for constructing China's international discourse system and enhancing international communication capabilities. Using China's “Belt and Road Initiative” (BRI) as a case study, this study focuses on the direction, intensity, and trend changes of agenda-setting between Chinese mainstream media and international mainstream media on Twitter over ten years. This study found that Chinese mainstream media's agenda-setting showed a fluctuating upward trend, gradually gaining dominance and moving away from the influence of international mainstream media. The “intensity” of agenda-setting also reflected China's strong international discourse guidance.

1. Introduction

As a primary platform for Chinese mainstream media to communicate internationally, enhancing dissemination capabilities on international social media platforms has become particularly important. To better illustrate China's international communication influence, this study analyzes the agenda-setting ability of Chinese mainstream media on the “Belt and Road Initiative” topic on global social media platforms.

Agenda-setting refers to the ability of one party's topic cognition sequence to influence another party's cognition sequence^[1]. This study uses the agenda-setting of the “Belt and Road Initiative” from 2013 to 2023 as an example, combining the issue attention cycles and a vector autoregression (VAR) model to analyze the directional and intensity trends between Chinese mainstream media and international mainstream media. Thereby it quantifies China's international communication influence and provides insights for future international communication of the “Belt and Road Initiative” and the enhancement of China's international discourse power.

2. Literature Review and Research Questions

The core idea of agenda-setting theory posits that the significance of topics emphasized by the media can transfer to the public agenda. Basic agenda-setting, the first layer of this theory, focuses on the transfer of topic salience from the media agenda to the public agenda, i.e., the media tells

people “what to think about”^[2]. Since its inception, agenda-setting theory has predominantly focused on politically relevant topics^[3-4]. The longitudinal changes in media regarding the “Belt and Road Initiative” agenda and the interaction between international and domestic agendas are of significant practical relevance for analyzing the evolution of China’s international discourse power over the past decade.

In addition, previous studies on the agenda-setting capability of China’s mainstream media typically focus on short-term and sudden cases within a specific period. These studies analyze the agenda-setting relationships among different entities but often neglect the long-term agenda-setting ability of Chinese mainstream media on international social media platforms.

Moreover, current research on the international dissemination of political issues often limits itself to a superficial depiction of directions, i.e., “who sets whose agenda.” The conclusions of these studies usually describe the agenda-setting relationships as “active,” “passive,” or “mutual.” However, they overlook the intensity and discourse-guiding power behind these relationships. Then questions remain: Does “active” necessarily mean absolute discourse power? Does “passive” imply a loss of discourse power? Or does “mutual” signify an equal relationship between the parties? These nuances require deeper exploration to fully understand the dynamics of international agenda-setting.

Based on this research background, the research questions proposed in this study are:

(1) What characteristics do Chinese mainstream media and international mainstream media exhibit in agenda-setting direction and intensity on Twitter during the four periods following the proposal of the BRI?

(2) What changes in trends do these characteristics show in their agenda-setting relationship, direction, and intensity during these periods?

3. Research Design

This study uses Twitter as the primary data source. As one of the major international social media platforms, Twitter, established quite early, contains discussions from various countries and types of media about the BRI. This provides rich data for analyzing the agenda interaction and temporal evolution concerning China’s BRI.

The data collection period for this study is from October 2013 to December 2023. The reasons for choosing this period are as follows:

In 2013, China first proposed the “Belt and Road Initiative”, creating an open international cooperation mechanism involving global participation and linking China with the world^[5]. The year 2023 also marks the tenth anniversary of the BRI, with the initiative mainly focusing on the platformization dimension of international communication.

This time frame, from 2013 to 2023, adequately covers the different stages of the topic attention cycle, presenting more comprehensive and scientific data.

Regarding the research subjects, this study focuses on two types of media: Chinese mainstream media and international mainstream media. CGTN and *China Daily* are selected as representatives of Chinese mainstream media. For international media, as Figure 1 shows, the study first does the comparison of data sources from different international mainstream media to ensure their popularity. The study then selects mainstream media from countries that have intense discourse competition with China regarding the “Belt and Road Initiative”, including *Sydney Morning Herald* (Australia) and *Washington Post* (the USA), as well as mainstream media from countries that have signed cooperation agreements with China to promote the BRI, including *Dawn* (Pakistan) and *The Leader* (Nigeria), to present a more comprehensive international perspective on the “Belt and Road Initiative”.

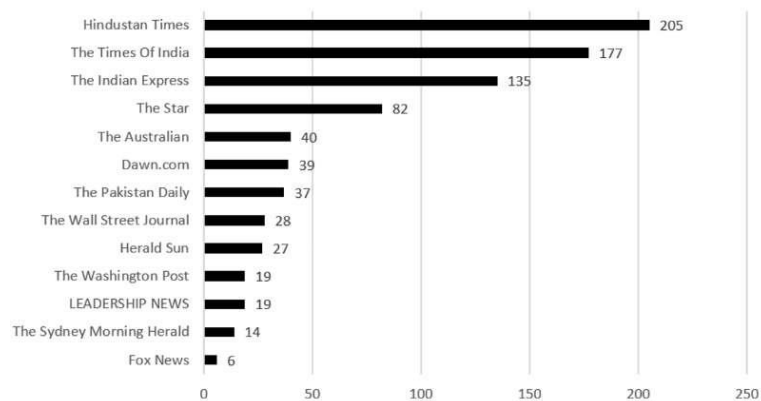


Figure 1: Comparison of Data Sources from International Mainstream Media

The retrieval of relevant tweets on Twitter is divided into two steps. First, the keywords “Belt and Road” and “BRI” are used as search terms, limiting the search to the chosen Chinese and international mainstream media accounts, and all historical tweets mentioning these keywords are crawled. Then, the collected tweets undergo a consistency check using the Cohen Kappa coefficient, excluding irrelevant or weakly related tweets with a Kappa value of less than 0.6. This results in 2,810 tweets from Chinese mainstream media and 828 tweets from international mainstream media.

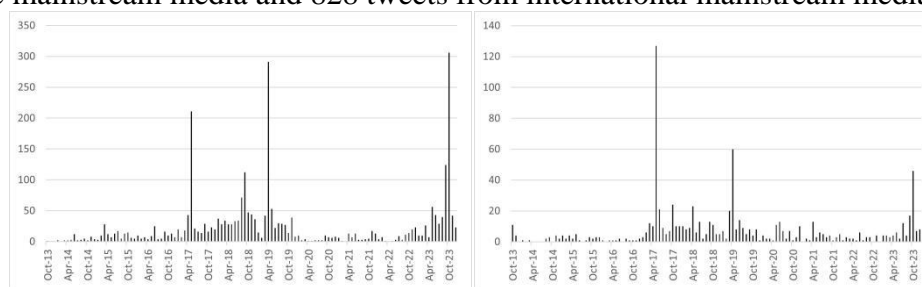


Figure 2: Trend of Twitter Posts by Chinese Mainstream Media and International Mainstream Media from 2013 to 2023

As is shown in Figure 2, after combining the evolution trends of tweet volumes and key event nodes from Chinese and international mainstream media regarding the “Belt and Road Initiative”, the discussion on the BRI topic is then divided into four phases:

- (1) **Initial Stage:** October 2013 to December 2016. During this phase, the tweet volume from both domestic and international mainstream media was at a low level, with no significant discussion heat.
- (2) **Development Stage:** January 2017 to December 2019. There was a noticeable explosive increase in the number of tweets during this phase.
- (3) **Crucial Stage:** January 2020 to December 2022. The number of tweets showed a fluctuating upward trend during this phase.
- (4) **New Era:** January 2023 to December 2023. The tweet volume in this phase increased compared to the previous phase but remained relatively stable overall.

To explore the agenda-setting by Chinese mainstream media and international mainstream media on the “Belt and Road Initiative” topic on Twitter over ten years, this study employs time series analysis using the VAR model for data modeling. Through multivariate Granger causality tests and impulse response analysis, the study summarizes the direction and intensity of agenda-setting by Chinese mainstream media on Twitter and their evolving trends. The analysis process is completed using Stata17 software.

4. Analysis and Results

4.1 Data Analysis

4.1.1 First Phase: Initial Stage (October 2013 - December 2016)

In this study, the Granger causality test was conducted with a significance level of 0.05. When the results were significant, the strength of agenda-setting between Chinese mainstream media and international mainstream media on the BRI topic on Twitter was examined using cumulative orthogonal impulse response functions.

Table 1: Result of Granger causality test of the First Phase

Impact Direction (Cause→Effect)	Optimal Lag Length	χ^2	p-value	Result
China mainstream media→International mainstream media	4	5.8926	0.207	Insignificant
International mainstream media→China mainstream media	4	3.3231	0.505	Insignificant

Table 1 illustrates the findings from October 2013 to December 2016. At the significance level of $p=0.05$, the hypothesis that Chinese mainstream media does not Granger cause the agenda of international mainstream media cannot be rejected ($\chi^2=5.8926, p>0.05$). Similarly, the hypothesis that international mainstream media does not Granger-cause the agenda of Chinese mainstream media also cannot be rejected ($\chi^2=3.3231, p>0.05$). These results indicate that there is no statistically significant correlation between the agendas of Chinese mainstream media and international mainstream media.

4.1.2 Second Phase: Development Stage (January 2017 - December 2019)

Table 2: Result of Granger causality test of the Second Phase

Impact Direction (Cause→Effect)	Optimal Lag Length	χ^2	p-value	Result
China mainstream media→International mainstream media	4	97.875	0.000	Significant
International mainstream media→China mainstream media	4	11.911	0.018	Significant

As shown in Table 2, from January 2017 to December 2019, at a significance level of $p=0.05$, the hypothesis that Chinese mainstream media does not Granger-cause the agenda of international mainstream media can be rejected ($\chi^2=97.875, p<0.05$). Likewise, the hypothesis that international mainstream media does not Granger cause the agenda of Chinese mainstream media can also be rejected ($\chi^2=11.911, p<0.05$). Compared to the previous period, both Chinese mainstream media and international mainstream media gained the ability to influence each other's agendas.

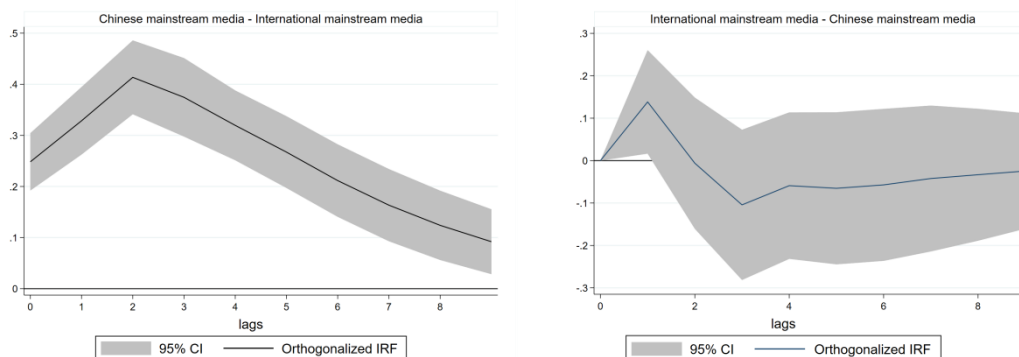


Figure 3: First-phase Orthogonalized Impulse Response Function Plot

Given the presence of Granger causality, Figure 3 shows that Chinese mainstream media consistently exerts a positive impact on international mainstream media across 1-8 lags. The

cumulative impact peaks at the second lag, reaching 0.414, which means that a unit shock from Chinese mainstream media leads to an increase of 0.414 units in the number of posts by international mainstream media. At the fourth lag, which is identified as the optimal lag length, the cumulative impact of Chinese mainstream media is 0.32, indicating a relatively strong influence.

In contrast, international mainstream media has a positive impact on Chinese mainstream media only at the first lag, with a cumulative impact of just 0.138, indicating a weaker influence. This shows that, compared to international mainstream media, Chinese mainstream media has a stronger agenda-setting influence.

4.1.3 Third Phase: Crucial Stage (January 2020 - December 2022)

Table 3: Result of Granger causality test of the Third Phase

Impact Direction (Cause→Effect)	Optimal Lag Length	χ^2	p-value	Result
China mainstream media→International mainstream media	4	0.47237	0.976	Insignificant
International mainstream media→China mainstream media	4	9.4973	0.05	Insignificant

As shown in Table 3, from January 2020 to December 2022, at a significance level of $p=0.05$, the hypothesis that Chinese mainstream media does not Granger-cause the agenda of international mainstream media cannot be rejected ($\chi^2=0.47237$, $p>0.05$). Similarly, the hypothesis that international mainstream media does not Granger-cause the agenda of Chinese mainstream media also cannot be rejected ($\chi^2=9.4973$, $p>0.05$). This indicates that there is no statistically significant correlation between the agendas of Chinese mainstream media and international mainstream media during this period.

4.1.4 Fourth Phase: New Era (January 2023 - December 2023)

Table 4: Result of causality test of the Fourth Phase

Impact Direction (Cause→Effect)	Optimal Lag Length	χ^2	p-value	Result
China mainstream media→International mainstream media	2	60.897	0.000	Significant
International mainstream media→China mainstream media	2	0.08386	0.959	Insignificant

As shown in Table 4, from January to December 2023, at a significance level of $p=0.05$, the hypothesis that Chinese mainstream media does not Granger-cause the agenda of international mainstream media can be rejected ($\chi^2=97.875$, $p<0.05$). However, the hypothesis that international mainstream media does not Granger cause the agenda of Chinese mainstream media cannot be rejected ($\chi^2=11.911$, $p<0.05$). Compared to the previous period, Chinese mainstream media has once again gained the ability to set the agenda for international mainstream media, demonstrating strong proactivity. In contrast, international mainstream media remains relatively passive, in a “follower” role during this period.

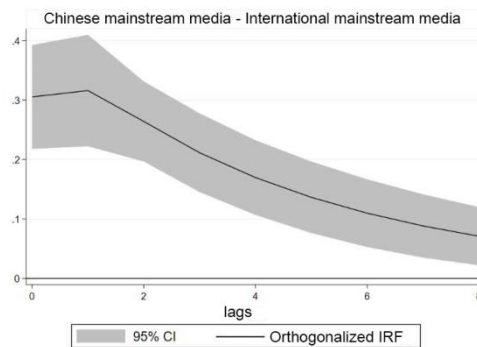


Figure 4: Fourth-phase Orthogonalized Impulse Response Function Plot

In terms of impact, as shown in Figure 4, Chinese mainstream media consistently exerts a positive influence on international mainstream media across 1-8 lags, initially increasing and then decreasing. The impact reaches its peak at the first lag with a value of 0.316. At the optimal lag length, which is the second lag, the cumulative impact of Chinese mainstream media is 0.263. Although the pulse strength of Chinese mainstream media has decreased compared to the second stage, it still maintains a strong agenda-setting ability over international mainstream media.

4.2 Overall Trend Changes

When it comes to the direction of agenda-setting, both parties show a fluctuating trend. Chinese mainstream media, as the proactive party in agenda-setting, did not effectively set the agenda for international mainstream media during the initial phase of the topic. However, as the discussion heat of the BRI increased, Chinese mainstream media gradually moved away from a passive position. During the development phase of the topic, they significantly influenced the agenda of international mainstream media. At the same time, international mainstream media also gained the ability to set the agenda for Chinese mainstream media. In the crucial phase, influenced by the international environment, the discussion on the BRI decreased significantly, and both Chinese and international mainstream media lost the ability to set each other's agendas, with weak correlations between their agendas. In the new era of the topic, the discussion on the BRI increased significantly again, with Chinese mainstream media regaining the ability to set the agenda for international mainstream media. However, during this period, the influence of international mainstream media on the agenda of Chinese mainstream media remained weak, with Chinese mainstream media maintaining a proactive stance.

In terms of agenda-setting intensity, the performance of Chinese mainstream media shows a declining trend but still outperforms international mainstream media. During the development phase, the influence intensity of Chinese mainstream media on international mainstream media was 0.32, while in the new era of the topic, this value dropped to 0.264. In contrast, the influence intensity of international mainstream media on Chinese mainstream media was weaker, with a peak value of only 0.138. This shows that Chinese mainstream media have a strong influence on international mainstream media, but the declining trend in intensity in the new era of the topic needs to be monitored.

5. Summary and Discussion

In this study, the analysis of agenda-setting intensity reveals distinct patterns across four phases. Initially, both Chinese and international mainstream media showed relatively weak agenda-setting intensity during the first and third phases. However, during the second and fourth phases, Chinese mainstream media exerted a stronger influence on international media agendas compared to the reciprocal influence. Throughout all phases, Chinese mainstream media consistently demonstrated efforts in agenda-setting, indicating persistent engagement over time. Despite this effort, sustaining and enhancing this influence remains a continuous challenge.

While mutual influence between Chinese and international media was minimal during the first and third phases, Chinese media were less affected by international agenda-setting efforts. Notably, in bilateral agenda-setting dynamics, Chinese media exhibited greater agenda-setting intensity than international counterparts setting agendas involving Chinese media. This tendency underscores that agenda-setting power in international communication encompasses directional influence and strength. Non-Western countries often face technological, platform, and capital disadvantages, affecting their ability to navigate public opinion and manage agenda-setting effects. Despite fluctuations in agenda-setting dynamics, this study also shows the fluid nature of power dynamics and the evolving intensity

of agenda-setting relationships.

To further analyze the results of this study, international mainstream media sometimes have a significant agenda-setting impact on Chinese mainstream media in terms of direction; however, their influence intensity is relatively weak. When Chinese mainstream media guide the agenda, whether unidirectionally or bidirectionally, they maintain a high agenda-setting intensity and capability, even though there is a declining trend in intensity during the fourth period. The effectiveness of agenda-setting on the BRI by Chinese mainstream media is influenced by the international public opinion environment, media attributes, major public health events, etc. These fluctuations do not equate to a weakening of agenda intensity. According to the pulse display, the agenda-setting intensity of Chinese mainstream media demonstrates their enduring internal strength and determination. As the BRI transcends national and regional boundaries with its normative value of a “community with a shared future for mankind”, its international communication translates this value from norms to experience, with Chinese mainstream media's dissemination over the past decade serving as an effective model^[6]. As an important source of autonomous practice and original ideas in the international dissemination of Chinese political discourse^[7], the setting of the BRI agenda and the analysis of discourse power on this topic need to consider both the power of the agenda-setting subject and the impact of media attributes and object cooperation on the setting effect. In specific analysis and practice, it is necessary to enhance thinking about the “direction” of agenda-setting and to question the issues of “intensity” and “discourse guidance” behind it.

Based on the above analysis, this study proposes several strategies to further enhance the international dissemination capabilities and levels of China's political agenda.

First, Chinese mainstream media should master the proactivity of social media and actively set the agenda or provide detailed content^[8]. For example, Chinese mainstream media can proactively set the agenda on international social media platforms and publish detailed content for overseas mainstream media, carrying out dissemination work related to the BRI under the “China Initiative” context.

Second, Chinese mainstream media can refine reporting content and adjust reporting style. They can refine content according to the characteristics of different international social media platforms, adjusting the reporting style based on the discourse characteristics of different platforms, such as changing the focus or emotional orientation of the content.

Third, Chinese mainstream media can promptly respond to public concerns to enhance international confidence and expectations regarding the topic. On global social media platforms, some users distrust and have no expectations for Chinese official media. Chinese mainstream media can actively respond to comments and all known public concerns while conducting public opinion monitoring, leveraging the advantage of online agenda-setting.

In conclusion, this study's theoretical contribution lies in the use of VAR modeling and Granger causality tests to organize and analyze the collected primary data, combining agenda-setting theory with the topic attention cycle theory to analyze the relationship, direction, and intensity changes in agenda-setting by Chinese mainstream media on Twitter, thus expanding the scope of theoretical application^[9]. In practice, this study's use of agenda-setting further complements previous research that was limited to surface-level directional depiction^[10], focusing on the directional relationships between different subjects and exploring the underlying “intensity” issues.

6. Conclusion

In the new era, constructing and enhancing international discourse power is an inevitable challenge China faces as it transitions from a major global power to a great power. Combined with different topic attention cycles, Chinese mainstream media should master the pro-activity of social media,

actively set the agenda, refine reporting content, adjust reporting style, and promptly respond to public concerns to enhance international confidence and expectations regarding the BRI, thereby further enhancing China's international discourse power.

References

- [1] McCombs, M. E., Shaw, D. L. (1972). *The Agenda-setting Function of Mass Media*. *Public Opinion Quarterly*, 36(2), 176-187.
- [2] Kioussis, S. & McCombs, M. (2004). *Agenda-setting effects and attitude strength: Political figures during the 1996 presidential election*. *Communication Research*, 31(1), 36–57.
- [3] Jiang, X.C. & Zhong, X. (2021). *Duplication on Refraction in Network Agenda Setting: A Comparative Study of American and French Media Reporting and Public Opinion on "Black Lives Matter"*. *Global Journal of Media Studies* (04), 103-119. doi:10.16602/j.gjms.20210033.
- [4] Shi, A.B. & Wong, P.N. (2017). *Agenda-Setting Theory in the last 10 years: Origins, Development and Prospects for the Future*. *Journalism & Communication* (10), 13-28+127.
- [5] Pu, X.P. (2023). *The Belt and Road Initiative: Achievements and Contemporary Relevance*. *International Forum* (03), 37-51+156-157. doi:10.13549/j.cnki.cn11-3959/d.2023.03.003.
- [6] Jing, X.M. (2015). *Political Communication Institute of Communication University of China*. *Chinese Journal of Journalism & Communication* (08), 6-19. doi:10.13495/j.cnki.cjcc.2015.08.001.
- [7] Ji, D.Q. & Yan, B.W. (2023). *In Pursuit of Subjectivity: The Belt and Road Initiative and the Imagination of International Communication Studies*. *Media Observer* (09), 28-35. doi:10.19480/j.cnki.cmgc.2023.09.001.
- [8] Xu, Z.W. & Chen, Y. (2020). *Dilemma and Countermeasure Research on Agenda Setting in New Mainstream Media*. *Chinese Editors Journal* (11), 21-24.
- [9] Wong, Y.J. & Shi, W. (2023). *Chinese Mainstream Media Agenda-Setting on Twitter: An Analysis on the Issue of China's Poverty Alleviation*. *Global Journal of Media Studies* (04), 53-72.
- [10] Wong, H.X. & Yu, D.S. (2020). *Intermedia Agenda-Setting on Weibo Platform: An Analysis of Public Opinion on Trending Events in 2018*. *Journalism Research* (06), 82-96+125.