

RESEARCH ARTICLE

# A Citespace Analysis of International Studies on “Belt and Road Initiative” (2013–2019)

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**Abstract:** This paper reviews 482 SSCI English articles about the “Belt and Road Initiative (BRI)” with the bibliometric software Citespace. The visualization of country cooperation network and the geographical distribution of publications and funds demonstrate that international BRI studies are mainly carried out by countries along the routes of B&R (Belt and Road), with China, U.S.A., Australia, and the U.K. ranking as the top four in terms of research quantity and the number of international cooperation. Diachronically, the time-zone keyword display reveals the professionalization and reification of BRI research. The qualitative analysis of the top 40 high co-citation articles indicates three main research questions: the motivation of the initiative, the hegemony debate, and the potential opportunities and challenges. Besides, the Citespace keyword analysis proves the hypothesized correlation between the theme of the study and the national ideology of the author. Finally, suggestions for future study and further implementation of the initiative are given.

**Keywords:** Belt and Road Initiative, Citespace, International journals, knowledge mapping

借助Citespace知识图谱软件，本文对482篇研究“一带一路”的SSCI英文期刊文献进行统计分析。通过国家合作网络，基金和文章发表地理分布的可视化分析，作者发现国际相关研究主要由“一带一路”沿线国家展开，且以中国、美国、澳大利亚和英国的文章数目和国际合作研究数量居多。从历时视角来看，时间区关键词分析揭示出“一带一路”研究专业化和具体化的发展趋势。在量化统计的基础上，对40篇高共被引文献的质性分析得出三个主要研究问题：倡议动机、中国是否争霸，以及倡议实践的机遇和挑战。此外，Citespace关键词分析证实了研究主题和作者意识形态之间存在关联的假设。最后，基于量化统计和质性分析结果，提出“一带一路”国际研究趋势的预测和倡议推进的可行性建议。

关键词：一带一路 Citespace 国际期刊 知识图谱

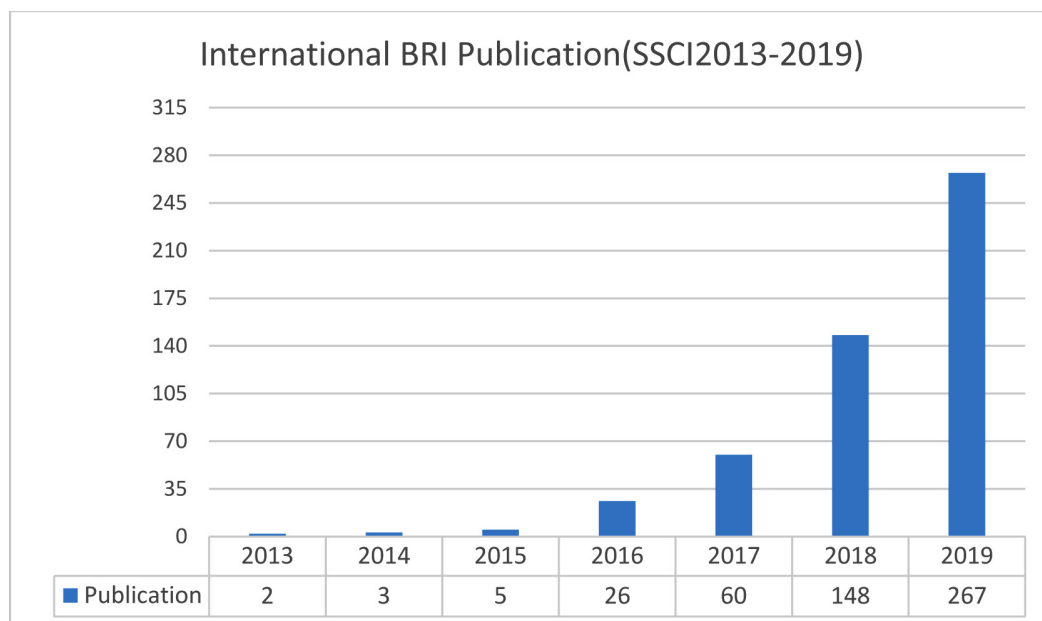
Within China, the earliest reviewing work of BRI studies was written by Prof. Zhao from the Chinese Academy for Social Science in 2016, in which he summarized the main questions in existing studies and pointed out the trend for future research. Since 2017, more Chinese scholars have started to analyze the BRI literature with the help of bibliometric software (Liu et al., 2017; Chen et al., 2017). However, most of the reviews only examined papers published in Chinese journals, with a few analyzing relevant studies in international journals. Moreover, the international studies of BRI are merely descriptive research of several English publications (Song & Zhang, 2018; Chen, 2018). A quantitative analysis of international BRI studies is needed to provide a comprehensive review of the international interpretation of BRI.

This paper analyzes 482 English articles in the Social Sciences Citation Index (SSCI) about BRI with knowledge-mapping software Citespace from various aspects: the cooperation network between countries, the geographical distribution of publications and funds, co-citation network, and the time-zone display of keywords. The top 40 articles' high co-citation rates are analyzed based on the visualization of international

BRI studies. The articles were collected from the Web of Science through thematic words searching, the search scope is SSCI, starting from 2006 to July 2019. Altogether, 482 English articles were found (see Figure 1).

It can be seen from Figure 1 that the number of BRI studies among English journals emerged in 2013 and started to grow ever since, and the growth rate accelerated notably after 2015. The apparent increasing trend in BRI studies globally demonstrates the rising interest in the initiative of international academia.

The paper will unfold as follows: section one visualizes the cooperation network between countries and the geographical distribution of BRI studies with the help of Citespace. The paper then demonstrates the diachronic evolution of BRI studies by presenting a time-zone keyword display of collected literature. Section two summarizes the main research questions and major controversies by categorizing the top 40 high co-citation articles. Section three investigates the reasons for controversies with supporting evidence from Citespace keyword analysis. Finally, suggestions for the BRI study and its execution will be given based on analyzing results.



*Note.* The statistics are retrieved through a keyword search in the SSCI index of WoS's core collection from 2013 to 2019. The keywords include "Belt Road Initiative OR One Belt One Road OR Beld and Road OR Maritime Silk Road OR Silk Road Economic Belt."

**Figure 1.** International BRI Publications (SSCI 2013-2019)

### Cooperation Network Between Countries and the Geographical Distribution of BRI Studies

Figure 2 shows the cooperation network between countries with publications on the BRI study, the visualization includes 22 nodes ( $N=46$ ) and 56 links ( $E=111$ ), and the network density is 0.1072, which indicates a relatively high degree of international cooperation on this topic. The network layout of Figure 2 is based on PageRank value, which is associated with international influence. It can be seen that China, England, the U.S.A., and Australia are the top four countries in terms of international influence about BRI studies.

Besides, the cooperation network between countries also reveals that countries of the same interest are more likely to cooperate, and the publications are mostly distributed around P.R.C., England, U.S.A., and Australia. Take PRC as an example, as it has the most significant number of BRI publications, its cooperation network is also the most extensive one, which consists of countries along the Silk Road Economic Belt and the Maritime Silk Road. For the U.S.A., the number of cooperative countries is fewer, and most countries’

interests are closely associated with Maritime Silk Road, such as Japan, South Korea, Philippines, and Malaysia. Similarly, countries that cooperated with Australia are mainly south-Asian countries that rely heavily on maritime business, such as Malaysia, Singapore, and Sri Lanka. In contrast, the countries that cooperated with England are mainly E.U. countries like Germany, France, and Asian countries under the influence of the continental Silk Road, including Kazakhstan, Myanmar, and Cambodia.

The country cooperation analysis has found that, altogether, 46 countries have published articles about BRI. Table 1 listed the top 10 countries, among which the above four countries ranked the first. The number of BRI funds of different countries and regions are also listed in Table 1. Although the number of publications and funds is under the influence of many different variables, there is no denying that the 13 countries or regions listed in Table 1 have shown keen interest in BRI research. Figure 3 displays the geographical distribution of publications and funds; the darker color signifies a more significant number of BRI publications and funds.



*Note: Figure 2 is obtained from Citespace, a knowledge mapping software developed by Chen Chaomei to visualize the cooperation between countries by analyzing the relevant literature.*

**Figure 2.** Cooperation Network Between Countries (Pagerank)

**Table 1***The Top 10 Countries/Regions of BRI Funds and Publications Ranking*

No.	Countries/Regions	Funds	No.	Countries/Regions	Publications
1	China	434	1	PEOPLES REPUBLIC OF CHINA	235
2	Korea	11	2	U.S.A.	53
3	U..S.A	10	3	AUSTRALIA	45
4	Poland	5	4	ENGLAND	34
5	Singapore	4	5	SOUTH KOREA	20
6	E.U.	4	6	SINGAPORE	19
7	Australia	4	7	TAIWAN	17
8	U.K.	4	8	CANADA	12
9	Taiwan(China)	4	9	GERMANY	8
10	Malaysia	2	10	JAPAN	6

It can be seen from Figure 3 that the countries or regions with most publications and funds are those located along the “Belt and Road,” whereas the U.S.A. and Canada are the developed countries which are not along the traditional B&R yet still have developed a keen interest in studying the initiative. Countries within the B&R area can be further classified according to the three main belts of the Silk Road Economic Belt (represented by the straight arrow of blue, green, and yellow respectively), and two Maritime Silk Road (represented by the curved arrows of purple and orange).

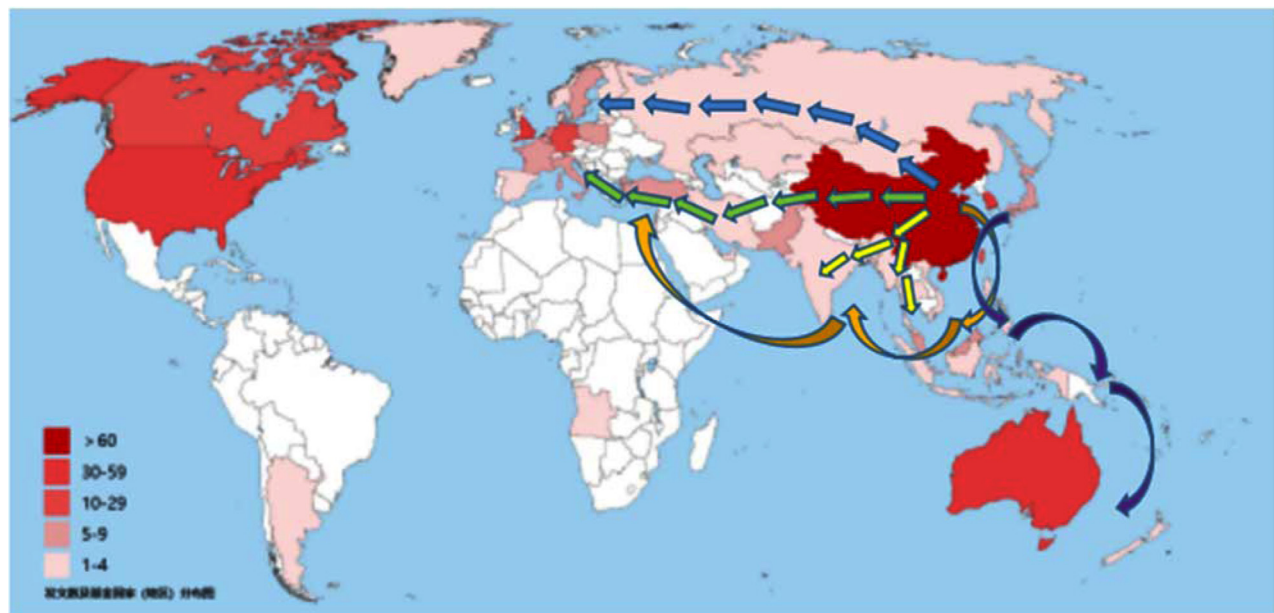
The three main belts of the Silk Road Economic Belt are

1. North belt (straight blue arrows): the one that links China to middle Europe through middle Asia and Russia, along which Germany (10; the number in the bracket indicates the number of publications of the country) and Poland (9) have more publications than other countries.
2. Middle belt (straight green arrows): the route that goes through middle and eastern Asia and reaches Persian and Mediterranean countries, along which Italy (8), France (5), Turkey (5), and Belgium (5) are countries paying more attention to BRI studies.

3. South belt (straight yellow arrow): the route that mainly connects China and India through countries of south-eastern Asia and South Asia, of which Pakistan (8) has the most relevant studies.

Besides, there are two main routes of the 21st-Century Maritime Silk Road: (a) one links Chinese ports with the South Sea of China, Indian Ocean, and Europe, along which there are countries like Japan (9), South Korea (31), Philippines (4), Singapore (23), and Malaysia (7) that have more publications of BRI; and (b) the other connects Chinese ports with the South Sea of China and countries of South Pacific, countries more concerned with the initiative include Australia (49) and New Zealand (2).

The geographic distribution of BRI studies shows that most of the high-productive countries are those along the routes of BRI, either the Silk Road Economic Belt or Maritime Silk Road. Besides, it seems that the 21st-Century Maritime Silk Road has attracted relatively more international focus compared with the Silk Road Economic Belt (Lee et al., 2017), which may be related to the researches published by the U.S.A. and Canada, who are more interested in the study of Maritime Silk Road (Blanchard, 2017; Blanchard & Flint, 2017).



Note: Straight arrows represent the Silk Road Economic Belt, and the curved arrows represent the Maritime Silk Road. The color depth of the map is in line with the number of publications of the area.

Figure 3. Global Geographical Distribution of Publications and Funds Related to BRI

### The Evolvement of International BRI Study (Temporal Perspective)

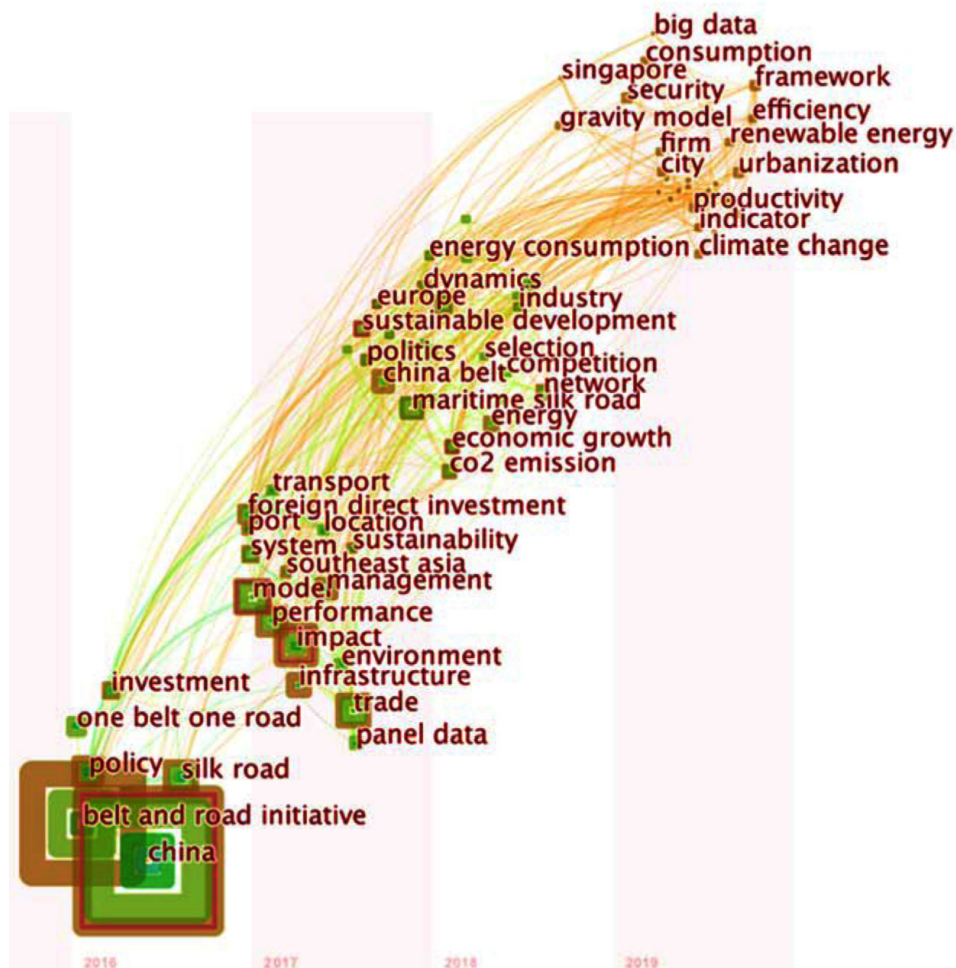
The time-zone keyword display of the collected 482 English articles in Figure 4 can demonstrate the diachronic evolvement of international BRI studies. In general, BRI studies become more specified, objective, and systematic, featuring more cross-disciplinary cooperation and diversified themes.

The horizontal line of Figure 4 represents time, and the size of nodes indicate the frequency of the words, links between words mean that the same words have appeared in different articles. Three trends can be discerned from Figure 4: (a) the keywords are becoming more divergent, and the themes diversify; (b) the links between terms of different fields are increasing, indicating a growing trend in cross-disciplinary cooperation; and (c) the reification of research topics, and the continuity between research questions.

Essential keywords in 2016 include “Belt and Road Initiative,” “foreign investment,” “the Silk Road,” and “policy.” It is clear that the research of 2016 mainly focused on explaining the initiative itself and China’s motivation behind the initiative.

The nodes of keywords increased significantly in 2017 and 2018, and the research topics became more and more specific. Among them, the keywords in 2017 demonstrated the transition from macro-view to micro-view, among which “China Model,” “Influence Impact,” and “Overseas Direct Investment FDI” are still essential nodes. At the same time, new studies focusing on “environmental environment” and “sustainability” and research on the implementation of the initiative, including “transport facilities,” “ports,” and “infrastructure” have emerged. Related research on “project location” also began to appear in 2017.

The research focus in 2018 is further reified and professionalized; meanwhile, the topics are consistent with the research questions in 2017. Compared with 2017, more in-depth research was carried out on environmental issues such as “energy consumption,” “carbon emissions,” and “sustainable development.” Besides, the research on Belt and Road Initiative demonstrates two directions: studies of “Silk Road Economic Belts” and researches on “Maritime Silk Road,” respectively. Besides, the project location problem raised in 2017 was further discussed. “Project Location Selection” and “Project Competition” became the keywords in 2018.



Note: Figure 4 is Citespace time-zone keyword display of BRI literature from 2015 to 2019.

**Figure 4.** Time-Zone Display of Keywords

Figure 5 shows that, in 2019, the research keywords are more professionalized and diversified. In line with the environmental and sustainable development issues highlighted in 2017 and 2018, keywords like “renewable energy” and “energy efficiency” showed that relevant studies were attempting to give solutions in 2019. Apart from that, attention has also been paid to the newly-emerged “security” issue.

In general, the focus of the international BRI study became more specialized from 2016 to 2019, changing from broad studies with “countries,” “regions,” and “economic belts” as keywords to more specific topics concerning “firm,” “city,” and “urbanization,” which

echoes the core of the initiative, that is, to improve the living standards of the people of countries along Belt and Road. Also, the analysis of the “influential indicators,” the use of “big data” as research methods, and the study about “trade gravity model” and “framework” show that the related research on the BRI is gradually moving from the preliminary motivation-analysis towards a more scientific and systematic research framework.

The evolvement of the BRI study presented in the time-zone keyword display is echoed by the qualitative analysis of representative papers of high co-citation listed in Table 2.

**Table 2***Summary of Representative Articles on BRI From 2016 to 2018*

<b>Year</b>	<b>Representative literature (High citation/ High co-reference)</b>	<b>Authors</b>	<b>Research Institute</b>	<b>Research Focus</b>
2016	Westward ho-the China dream and ‘one belt, one road’: Chinese foreign policy under Xi Jinping	Ferdinand, Peter	The Royal Institute of International Affairs, London, UK	BRI aims to promote China’s international political status and to resume the heyday of Ha and Tang Dynasties
	Understanding China’s Belt & Road Initiative: Motivation, framework and assessment	Huang, Yiping	National School of Development, Peking University, China	BRI aims to realize a win-win economical cooperation by assisting in the development of infrastructure in less developed regions
	China’s ‘New Silk Roads’: sub-national regions and networks of global political economy	Summers, Tim	University of California, San Diego, USA	BRI aims to strengthen regional networks to optimize capital flows and promote economics while expanding political influence
	China’s “New Silk Roads,” sub-national regions and networks of global political economy	Cheng LK	Lingnan University, Hong Kong, China	BRI emphasizes economic development rather than geopolitics, and there are many uncertainties for its successful implementation
2017	Novel intuitionistic fuzzy decision making models in the framework of decision field theory	Hao, Zhinan	PLA University of Science and Technology, Nanjing, China	Establish a fuzzy decision model for the location decision of medium and large projects in BRI
	Renewable and sustainable energy of Xinjiang and development strategy of node areas in the “Silk Road Economic Belt”	Xu LJ	Xinjiang University, Urumqi, China	Renewable Energy Development and Sustainable Development Strategies for Xinjiang Region-a key node along the Belt and Road
	Research trend and agenda on the Belt and Road (B&R) initiative with a focus on maritime transport	Lee, Paul Tae-Woo	Zhejiang University; Shanghai Maritime University, China; Korea Advanced Institute of Science and Technology	Forecast of future research trends based o the review of the Maritime Silk Road studies
2018	Does One Belt One Road initiative promote Chinese overseas direct investment?	Du, Julian	Department of Economics, Chinese University of Hong Kong	Development of overseas investment projects since the announcement of BRI
	The dynamic links between CO2 emissions, energy consumption and economic development in the countries along the Belt and Road	Liu, Yunyang	Center for Energy and Environmental Policy Research, Beijing Institute of Technology	Dynamic links between carbon emissions, energy consumption and economic development in countries along the Belt and Road
	Energy investment risk assessment for nations along China’s Belt & Road Initiative	Duan F.	College of Management and Economics, Tianjin University, Tianjin, China	Risk assessment of energy investment in countries along the Belt and Road

Table 2 summarizes 11 representative articles from 2016 to 2018, selected according to the criteria of high-citation and high co-citation. It can also be seen from Table 2 that the study has become more reified and practical than before. All the four articles of 2016 focused on the motivation analysis of the initiative, and the representative literature of 2017 focused on practical issues encountered during the process of project implementation, with particular attention paid to sustainable development. Themes of articles published in 2018 are consistent with the articles of 2017; environment protection and energy utilization continue to be the focus of the study. In general, the international BRI studies are becoming more professionalized and reified, attaching importance to practical issues rather than abstract discussions about the motivation of the initiative, which is in line with the time-zone keyword display above.

### **Main Research Questions in International BRI Studies**

The following part of the paper is devoted to a qualitative analysis of 40 articles of high co-citation. Three major research questions of international BRI studies were summarized, categorized, and analyzed.

#### ***The Motivation Behind the “Belt and Road Initiative”***

Discussion about the motivation behind the initiative is where the most controversies lie. One of the most cited articles is “Westward ho—the China dream and ‘one belt, one road’: Chinese foreign policy under Xi Jinping” written by Peter Ferdinand (2016). Ferdinand (2016) believed that the starting point of the Belt and Road Initiative (OBOR) is related to the pressure on China’s government caused by the slowdown of the economy’s increasing rate. The article stated that OBOR marks a new period in which China’s diplomatic activities, represented by President Xi Jinping, assumes a more active attitude in international affairs, stressing the geopolitical considerations of the initiative. The article indicated that BRI reflects China’s desire to enhance its international status (Ferdinand, 2016). A similar view was shared by Theresa Fallon (2015) in the article “The New Silk Road: Xi Jinping’s Grand Strategy for Eurasia,” emphasizing that the initiative intends to re-construct the geopolitical landscape in Asia-European continent by expanding China’s influence.

Both Ferdinand (2016) and Fallon (2015) have laid more emphasis on the geopolitical considerations of the initiative, downplaying or even ignoring the initiative’s aim to promote economic cooperation among countries along the Belt and Road. Fallon’s (2015) article presumed that the interests of the United States are on the opposite side of China’s development, which exposes her implicit Cold War thinking and the emphasis on China threat theory; the objectivity of her interpretation of the initiative stands to reason.

Another article of high co-citation, which revolves around the first question, is “Understanding China’s Belt & Road Initiative: Motivation, Framework, and Assessment” written by Professor Huang Yiping (2016) who pointed out four specific goals of BRI:

1. Explore new international economic cooperation models with partner countries to maintain China’s economic growth.
2. Share learned lessons from economic development with other countries to take on more responsibilities in the international economic framework.
3. Improve the voice of emerging economies.
4. Promote the infrastructure-first economic development model.

Meanwhile, the article emphasizes that the initiative will provide valuable opportunities for the construction of a vital new regional economic center and a new international economic policy (Huang, 2016). These four goals clarify that the real intention is to boost economic cooperation rather than geopolitical planning. Meanwhile, Huang (2016) acknowledged that the initiative is a comprehensive plan that includes diplomatic dialogue, infrastructure connectivity, unimpeded international trade, and personnel exchanges. He deemed it a highly inclusive and resilient framework geared towards voluntary cooperation from all countries. Tim Summer (2016) identified BRI as a flexible framework that integrates multiple economic, political, cultural, and social goals, which it intends to realize through enhancing the connectivity of urban centers by investing in infrastructure.

Huang (2016) and Summer (2016) agreed on the flexibility of the economic framework proposed by BRI. It is hard to argue against the unity between economy and politics, but there is a vast difference



in the discussion of intention or motivation behind the initiative. As Summer (2016) claimed, China's increased international influence may be the natural result if the initiative can be interpreted objectively and welcomed by countries along the routes. However, the possible consequence of the initiative cannot be used as evidence to justify that BRI's primary purpose is to magnify China's global caliber. Huang did not shun from the initiative's intention to boost China's economic growth. Simultaneously, it would be unjustified to ignore the substantial economic development opportunities that can be brought to cooperative countries, especially developing countries, by the initiative.

Professor Cheng (2016) of Lingnan University in Hong Kong has pointed out that the Belt and Road Initiative can bring economic cooperation chances to countries and regions along the route through industrial specialization, labor division, and complementarity between economic structures. Regardless of whether China has other geopolitical planning, there is no denying the mutual economic benefits (Cheng, 2016). Many scholars echo this argument. Liu Weidong of the Chinese Academy of Sciences and Michael Dunford of the University of Sussex in Birmingham, UK, collaborated on the article about globalization and BRI (Liu & Dunford, 2016). Unlike any other international initiative, the article has explicated that BRI is a highly inclusive globalization framework inspired by China's successful development experience. The establishment of international economic, strategic, cooperation, and multilateral trust mechanisms can increase investment, build infrastructure, and solve employment problems, and finally achieve shared prosperity (Liu & Dunford, 2016).

In Italy, Casarini (2016) of the Italian Institute of International Affairs in Rome believed that the BRI will bring unprecedented development opportunities to the continent's economy after the financial crisis. He also mentioned that the two countries should strengthen cooperation on security issues. Connectivity can create a peaceful and stable environment for shared economic development for Europe, China, and other countries (Zeng, 2017).

### ***The Controversy About Global Hegemony***

Some articles claimed that BRI is China's attempt to replace the U.S. as the new world leader (Callahan, 2016; Rolland, 2017; Sidaway, 2017). One of the

representative literature is Callahan's (2016) article, "China's "Asia dream": The Belt Road Initiative and the New Regional Order." Callahan (2016) argued that the "Chinese dream, Asian dream," new policies (integrated foreign and security policies), new institutions (Asian Investment Bank), and new initiative (One Belt One Road) constitute a package of policies, which aim to build an economical, political, cultural, and security network that centers on China. The initiative ultimately means to change regional and even global governance.

However, a detailed analysis of the article reveals that Callahan has misinterpreted the Chinese official statements due to his wrong understanding of some Chinese characters. For example, the nominal phrase 周边外交 (zhōu biān wài jiāo – literal translation: peripheral diplomacy) refers to China's diplomatic relations with neighboring countries, the phrase "周边 (zhou bian)" refers to the geographical locations of the countries relevant to China, and "外交 (wài jiāo-diplomacy)" means both diplomatic relations and the diplomatic activities conducted to build relationships. In other words, "周边 (zhōu biān-peripheral)" functions as a metonym for periphery countries, and "周边外交 (zhōu biān wài jiāo-peripheral diplomacy)" means the diplomatic relations with the countries located around China geographically. Callahan (2016) misunderstood the relationship between "周边 (zhōu biān-peripheral)" and "外交 (wài jiāo-diplomacy)" by interpreting "周边 (zhōu biān-peripheral)" not as "recipient" of the "material clause," but as the «conditional adverbial" of the "process" (Halliday et al., 2014), and thus misinterpret it as "China-centric" diplomacy. Besides, Callahan's (2016) analogy between ancient China's "tribute system" and the cooperative relations of China and neighboring countries is more of an illusion than fact.

Nordin and Weissmann (2018) cited Callahan's "China Threat Theory," claiming that the BRI is both a driver of capital flow and propaganda of China's power and ethnic superiority. A similar accusation is shared by Rolland (2017) and Singaporean scholar Hong Yu (2016). In Yu's article "Motivation behind China's 'One Belt, One Road' Initiatives and Establishment of the Asian Infrastructure Investment Bank." Yu (2016) used words like "ambitious," "geopolitics," "global power," "formidable," "huge," "giant," "expand,"

“ascendency,” and “hubris” to exaggerate the political meaning of the initiative, asserting that BRI is China’s long-awaited strategy to expand its international political influence. He also subjectively described the win-win economic prospect as a China-centric revolution of other countries Yu (2016). However, Yu’s (2016) only evidence to support his arguments was his self-contradictory comparison between the ancient Maritime Silk Road represented by Zheng’s voyage and the New Silk Road. He first tried to prove that politics cannot be equated with the economy by giving the example of Zheng’s travel to minimize the economic opportunities that could be brought by the initiative, and then argued against himself by saying that economy and politics are inseparable, so the motivation of BRI is mainly political scheming. The whole logic of argumentation is contradictory; the piling of the false evidence to support the China threat theory only ends up exposing his deep-rooted bias against the Chinese political system and the malicious intention to contain China’s development.

As far as hegemony is concerned, an article written by Cheng (2016) has made a rational analysis. In the article, Cheng (2016) pointed out two basic facts that prove the absurdity of the idea that China tries to use BRI to pursue world hegemony. Firstly, the substantial economic and military gap between China and the U.S. makes China not capable of competing with the U.S. Secondly, the complex geopolitical relations and existing territorial disputes in middle Asia also makes it unrealistic for China to attract allies through capital export and investment infrastructure. Therefore, Cheng (2016) believed that the real purpose of the initiative is not as ambitious as to expand the sphere of political influence, but limited to the level of promoting trade and increasing investment to maintain and enhance economic growth.

Then how do we explain the prevalent controversies of BRI’s motivations in the international academic community? Beeson (2016) of the University of Western Australia believed that one reason is that China’s economic growth is unprecedented in terms of both speed and volume. In this way, for some scholars, mainly American scholars of realism, the rapid economic growth in just 30 years will undoubtedly lead to military conflicts between China and other countries. However, considering the Chinese socialist marketing economy’s specialty, the applicability of the western economic theory is questionable.

A cooperative study conducted by Peking University and the University of British Columbia in Canada has put forward a similar argument with Cheng (2016). The article further explained the necessity for China to propose this initiative, stressing that it is more of passive self-defense than the active expansion of the alliance (Wang, 2016). Specifically, it emphasizes that BRI is a move made in the face of the slowdown of domestic economic growth, the isolation caused by the United States’ plan “Return to Asia,” and the deterioration of diplomatic relations with neighboring countries after the global economic crisis in 2008.

### ***Opportunities and Challenges brought by BRI***

Huang (2016) also pointed out challenges in the process of initiative implementation in his article, which includes the lack of unified coordinating mechanisms and the conflicts in culture and values between different countries and regions along Belt and Road. Li et al. (2015) has focused on analyzing the fragile environmental challenges faced by infrastructure construction in Central Asia in his cooperative study with Scarborough University of Toronto, Canada. The co-authored article focuses on the water-deficiency and possible soil pollution and degradation of energy extraction (Li et al., 2015). It is suggested that the cooperation of scientists from various countries is needed to estimate the resources required for the project in advance, and to reasonably predict the possible environmental problems and establish a project risk assessment mechanism.

Besides, some research groups have applied quantitative assessments to study the spatial characteristics of ecosystem services in arid regions of Altai and provided important suggestions for hinterland transportation, project site selection, sustainable energy development, and utilization in inland regions (Jiang et al., 2018; Fu et al., 2015). In the face of the water shortage and the potential risk of increased desertification in the exploration of the Tarim Basin, Chen et al. (2016) has established a unified water management model covering both surface water and groundwater. Energy utilization is also the main research question under the framework of the initiative. There have been increasing studies on energy utilization and integration in countries along the route (Han et al., 2018). More investigations have been carried out with regard to the dynamic relations between energy consumption, carbon emissions (Liu

& Hao, 2018), and economic development (Duan et al., 2018), and the establishment of a risk assessment system for energy-exploration investment.

Apart from the attention paid to the ecological environment and energy utilization, researches on overseas investment and project construction driven by the initiative have also increased. Du and Zhang (2018) have collected relevant data from the countries along the route to study the investment changes in infrastructure construction. The results showed that the number of projects in countries along B&R has risen since it was launched in 2013. Based on the establishment of a sample database of 93 countries along the route, it has been revealed that the main factors affecting China's overseas investment include its exchange rate level, market potential, openness, and infrastructure situation (Liu et al., 2017).

The increase in the number of projects and statistics on site selection further proves the Chinese government's determination and efficiency in implementing BRI. For the project site selection and decision making, the number of studies on the construction of onshore high-speed rail and offshore ports has increased, including the establishment of a systematic fuzzy decision-making model to select offshore energy transportation routes (Hao et al., 2017; Shao et al., 2018)), the evaluation of construction priorities, and exploration of capacity sharing and co-construction of port interconnection networks (Ruan et al., 2017). In his article, Cheng (2016) also pointed out that finding a balance between profitability and economic order and building mutual trust between partners are the critical issues to the initiative. The same argument is shared by Callaghan and Hubbard (2016), who also emphasized the determining role played by social factors in the successful implementation of the initiative.

Besides, Chinese scholars have become more aware of the importance of human-environment and social factors in recent years. Xu et al.'s (2017) analysis based on the case of renewable and sustainable energy use in Xinjiang stressed that Xinjiang and other vital nodes along the route need to develop education vigorously, adjust policies to attract talents, develop universities in Northwest China, and increase student exchange with countries of Central Asia (Xu et al., 2017). They had concluded that the problems in energy utilization are not limited to outdated technological facilities and fragility of the environment; the correct understanding

of the diversity of Xinjiang's new energy structure and the lack of efficient government guidance also matter to a great extent.

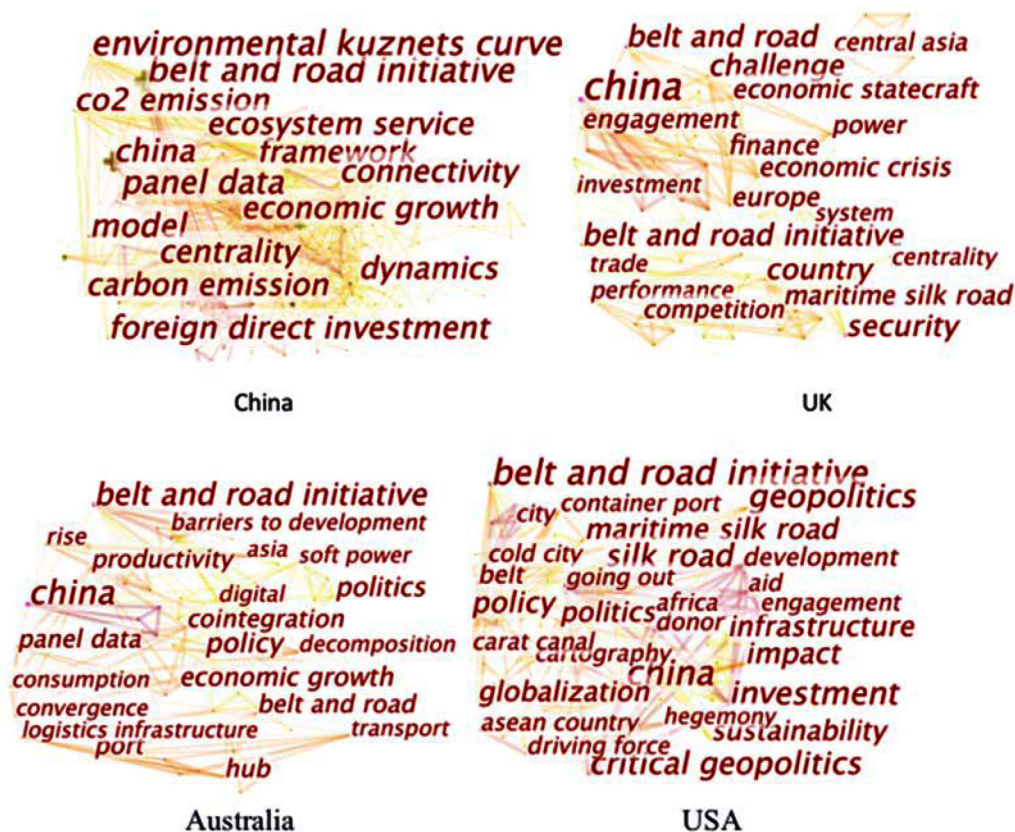
### Controversy Analysis

A comparative analysis of the literature reveals that Huang's (2016) article more objectively stated the economic development goals that China intends to achieve through the initiative, which is supported by the investment plan and more overseas projects that have been put into practice. On the contrary, articles claiming the ambitious political aspiration behind China's BRI are groundless assumptions, and most contain a self-contradictory logic. For example, Ferdinand (2016) argued that because the new Chinese government is taking a more proactive stance on foreign policy and the domestic policy is emphasizing spiritual civilization, the BRI is also an inevitable part of China's ideological output. The obvious hasty generalization reveals the preconceived prejudice against the Communist Party of P.R.C. and the regime. Table 3 and Figure 5 indicate that analysis of the initiative largely depends on the political stance and the author's national ideology.

The focus of the study on BRI varies. According to the research area analysis of Table 3, International relations and area studies are the most popular domains of BRI studies in Australia and the U.S.A., whereas in China, issues about environmental science and business economics are the research areas that boost the most publications. At the same time, the U.K. has the same emphasized issues concerning the environment and international relations. In general, it can be deduced that the BRI research in Australia and the U.S.A. attach more importance to the political influence of the initiative, whereas the U.K. shows a balanced distribution between politics and the environment. Meanwhile, China pays the utmost attention to the possible environmental influence of the initiative, with economic and technological studies ranking closely after environmental issues.

The link between themes of BRI studies and the national ideology of the authors is further proved through the analysis of the keywords of the BRI publications of the leading four countries in Figure 5.

The keywords analysis in Figure 5 is in line with the inference made based on the research areas ranking of the four countries. Keywords of China are mainly



Note: The figure is obtained from Citespace by analyzing each country's correspondent literature.

Figure 5. Citespace Keywords Analysis of Publications from China, U.K., Australia, and the U.S.

related to environment and economy, for example, “environmental Kuznets curve,” “co2 emission,” and “economic growth.” The U.K.’s keyword analysis also demonstrates an interest in economics, with high-frequency words like “economic statecraft” and “economic crisis.” Meanwhile, words like “competition” and “security” show the U.K.’s concern about the challenge BRI may bring to Europe. Compared with the U.K., Australia’s BRI study puts more emphasis on the political influence of the initiative, which can be revealed from keywords such as “politics,” “soft power,” but at the same time “economic growth,” especially the opportunities BRI may bring to marine transportation is also of high interest in Australia. In the end, the U.S.’s keywords distinguish from the other three countries in that economy-related words are not found in the keyword list. On the contrary, terms like “geopolitics,”

“politics,” “impact,” and “hegemony” are mentioned at a high frequency.

Table 3 and Figure 5 prove the link between the theme of the study and the political stance of the author. The argument that China is fighting for regional hegemony by expanding its sphere of influence is dominated by scholars of the American realist school, which built their arguments on the inevitable link between short-term rapid economic growth and economic conflicts and even military threats (Brewster, 2016). A detailed analysis of American scholars’ representative articles reveals their prejudices and misreading of Chinese policies due to the disapproval of the Chinese political institutions. When the Chinese government expressed its willingness to assume more international responsibilities to support the international free market order, it was misinterpreted as China’s attempt to seize the opportunity to be the

**Table 3***Research Area Ranking of China, U.S.A., Australia, and the U.K.*

No.	Australia		USA		China		UK	
	Research Areas	Record	Research Areas	Record	Research Areas	Record	Research Areas	Record
1	INTERNATIONAL RELATIONS	15	INTERNATIONAL RELATIONS	16	ENVIRONMENTAL SCIENCES	103	ENVIRONMENTAL SCIENCES	14
2	AREA STUDIES	13	AREA STUDIES	15	BUSINESS ECONOMICS	89	INTERNATIONAL RELATIONS	14
3	GOVERNMENT LAW	12	BUSINESS ECONOMICS	14	SCIENCE TECHNOLOGY	79	BUSINESS ECONOMICS	8
4	BUSINESS ECONOMICS	11	ENVIRONMENTAL SCIENCES	14	INTERNATIONAL RELATIONS	49	GOVERNMENT LAW	7
5	TRANSPORTATION	7	GEOGRAPHY	10	AREA STUDIES	40	SCIENCE TECHNOLOGY	7
6	ENVIRONMENTAL SCIENCES	4	SCIENCE TECHNOLOGY	9	TRANSPORTATION	36	AREA STUDIES	4
7	ENGINEERING	3	DEVELOPMENT STUDIES	6	ENGINEERING	35	ENGINEERING	4
8	DEVELOPMENT STUDIES	2	GOVERNMENT LAW	5	GOVERNMENT LAW	21	GEOGRAPHY	3
9	ENERGY FUELS	2	ANTHROPOLOGY	4	DEVELOPMENT STUDIES	13	TRANSPORTATION	3
10	GEOGRAPHY	2	ENGINEERING	4	ENERGY FUELS	12	DEVELOPMENT STUDIES	2

leader in the international community (Callahan, 2016). When the Chinese government proposed the concept of “win-win economic cooperation to achieve mutual benefits,” it was misinterpreted that China is imposing its definition of “win-win” upon the values of other countries and ignoring the potential that the BRI will bring regional economic development and prosperity. These comments have exposed fossilized mental schema, which constrains one’s mind and reveals the deep-rooted prejudice against the Chinese political system.

Diachronically, the criticist first satirized the initiative and then started to overinterpret it by overemphasizing the political motivation. After the proposal of the initiative, Clove and Hornby (2015) mocked the initiative as a “Christmas tree,” saying that it just loosely linked some existing Chinese economic proposals under a large label. Given the lack of details of the proposed economic corridor project, the whole initiative itself is deemed as more like a “mirage,” “an empty shell.” However, with the gradual advancement of the initiative, the criticism began to shift to the direction of China threat theory, treating the proposed

economic cooperation project as a “carrot” thrown for political purposes (Fallon, 2015). Most of the criticisms that highlight China’s ambition to pursue world hegemony are based on preconceived prejudices against the Chinese regime, the development model, ideology, and collectivist value, which prevented the authors from forming a comprehensive and rational interpretation of the initiative.

### Suggestions

The Citespace analysis of international BRI studies confirmed the general agreement in international academia on the valuable economic-development opportunities that can be brought by the initiative to countries with an open mind, especially to those along the Belt and Road. However, the comparative analysis of existing controversies in international academia has revealed the embedded political, ideological, economic, cultural, and environmental challenges for further implementation of BRI (Tracy et al., 2017). Those controversies are rooted mainly in prejudices of leading western countries against the Chinese political

regime, the fast-developing speed of China, and the lack of knowledge in Chinese traditional culture and value. To clarify the misunderstandings and solve the controversies, the following suggestions are given to facilitate the advancement of BRI for the sake of the shared prosperity of humanity:

- Promoting the rational interpretation of the “Belt and Road Initiative” requires collaboration within international research communities. To reduce misinterpretations, Chinese scholars should strengthen the theoretical studies of socialist economic development model with Chinese characteristics, and prove the feasibility of China’s peaceful development model through acknowledged economic theories and traditional Chinese cultural values.
- Breaking prejudice requires more reliance on folk communication and personnel exchanges. Increase the support for non-governmental personnel exchanges and international academic cooperation. Meanwhile, enhance the exchange of high-level overseas talents, and students can also deepen the international understanding of Chinese culture. Make full use of various kinds of new media to let people introduce traditional Chinese values by “telling a good Chinese story.”
- Optimize the management and implementation of the “Belt and Road” policy and increase policy-making transparency. A clear and coordinated network of responsible institutions for implementing the initiative should be established. Facilitate the cooperating procedures and reveal the operation mechanism to the cooperative countries to deepen mutual trust.
- The research on the social environment and cultural foundation of the countries along the route should be strengthened. While continuing to increase researches on investment location, decision-making models, and loan management, corresponding countermeasures have to be made in advance in case of the social and cultural conflicts that may result from personnel output.

## Conclusion

With the help of Citespace and WOS online citation analysis, this paper has visualized the cross-country cooperation network, the geographical distribution of publications, and funds of international BRI studies as well as the diachronic involvement of the study. Moreover, the paper has also combed through the top 40 high co-citation literature, summarized the main research questions in international academia, and further investigated the reasons behind the controversies.

The quantitative and qualitative analysis results show that the number of studies on the BRI in the international academic community has shown an apparent year-on-year growth since 2015. The research mainly comes from the countries along the Silk Road Economic Belt and Maritime Silk Road and the leading developed countries, with China, the U.S.A., Australia, and the U.K. ranked as the top four countries with the most publications and funds. Diachronically, the focus of the Belt and Road research has shifted from macro noun interpretation and motivation analysis to the solutions of specific practical problems in project implementation.

Through controversy analysis, it can be seen that the international criticisms about the geopolitical motives of the initiative are related to the authors’ national ideology; the detailed analysis has exposed deep-rooted prejudices against the Chinese political system, development model, ideology, and collectivist value. Despite the criticisms, a consensus has been reached on the great potential of BRI in promoting the economy of countries along the route. Based on the controversy analysis and the challenges in project construction, the paper has given some suggestions to advance the study and better implement the initiative.

## Declaration of ownership:

This report is my original work.

## Conflict of interest:

None.

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