Globalizing Propaganda: Examining the Practice and Regulation of China's Rise on Facebook and Twitter

by

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Abstract

This dissertation examines how contemporary state power is constructed and restricted through social media platforms by focusing on China's rising role in global communication. Previous research on China's approach to communication has focused mainly on censorship and activism at home while disregarding the fact that the Party-state is increasingly intervening in global information landscapes by curating information flows on Western platforms like Facebook and Twitter. This project draws on novel datasets and computational methods; and it integrates theoretical insights from global communication, comparative political communication, and international relations to develop a theory of how a rising non-Western and non-democratic power wields Western platforms for expanding its propaganda efforts. The theoretical framework is tested and supported by three empirical studies. In the first study, I reveal that Chinese state media actively leverage Western platforms to provide alternative news and craft national images, and global audiences engage with propagandized content. In the second study, I further demonstrate that the Chinese state media strategically shape international news by reporting different stories to foreign countries. Economic factors drive the structure of international news flows. In the third study, I test how Western platforms regulate and restrict this new practice of globalizing propaganda through strategic flagging of state media accounts. Collectively, these findings provide a composite framework to explore the stakeholders of globalizing propaganda, explain the components behind China's subversive penetration in global communication, and advance the scholarly understanding of state-sponsored international propaganda in the social media age.

Chapter 1 Introduction

Introduction

"Across the Great Wall we can reach every corner of the world"

– The first email sent from China, September 14, 1987

In February 2021, China Global Television Network (CGTN), a Chinese state-run multi-language media channel, lost its broadcast license in the UK because the communication regulator Ofcom concluded that the news network was fully owned by the Chinese Communist Party (CCP). At the same time, politicians and regulators in Germany and France discussed the challenge of preserving CGTN to stay on the air in Europe. However, this effort to ban CGTN does not necessarily mean that it cannot deliver news for European and/or global audiences today. On the contrary, CGTN had obtained more than 100 million followers on Facebook in 2020, making it the most popular media outlet on the largest platform in the world[1]. Along with other Chinese state media like Xinhua (89 million followers) and People's Daily (89 million followers), CGTN seeks to use Facebook and other platforms to dish up propaganda and simultaneously compete with Western mainstream media outlets at the international level.

[1] Although there have questions about the number of followers that CGTN and other Chinese state media obtained on Western social media platforms, Facebook claimed that less than 0.001% of the total followers of Chinese state media are fake accounts or bots (Economist, 2019).

To be sure, Western social media platforms have provided China an accessible bullhorn. In recent years, Chinese state media are increasingly flooding into Facebook and Twitter to offer multilanguage news for global audiences (Huang & Wang, 2019; Nip & Sun, 2018; Timmons & Horwitz, 2016). Among the top 10 news outlets with the most followers on Facebook, six are Chinese state media, including CGTN, CCTV (China Central Television), Xinhua, People's Daily, China Daily, and Global Times[2]. The main purpose of these media organizations, according to Chinese President Xi Jinping, is to "tell China's story well, spread China's voice well, let the world know a three-dimensional, colorful China, and showcase China's role as a builder of world peace" (AP, 2016).

However, the global expansion of Chinese state media presents a paradox. At home, the Chinese government has technically blocked Western platforms including Facebook and Twitter. As such, Chinese citizens cannot access these platforms unless they bypass the Great Firewall. Ironically, Chinese state media are substantially adopting these domestically-banned platforms to disseminate propaganda and shape online information. Then, to what extent and in what ways are Chinese state media leveraging Western platforms that are blocked in China for propaganda operations? How does this shift challenge our understanding of the current global communication order and international information landscape? What might this convey in renewing a scholarly examination of disrupted state-power (Owen, 2015) – a period purportedly testing the relevance and permanence of the state in the social media age?

In this dissertation, I argue that China's prominence on Western social media platforms has resulted in a profound shift in the order of global communication and a rising non-Western and non-democratic nation is increasingly displaying and exercising communication power

[2] Other four top news organizations are BBC News, CNN, CNN International, and Fox News.

throughout the world. The ongoing shift will determine who can influence the flows of international information online, as well as how such influences will be solidified in the social media age. Indeed, it has been argued that power can be constructed and maintained through the management and control of communication processes (Castells, 2013). Castells (2013, p. 10) defines power as "the relational capacity that enables a social actor to influence asymmetrically the decisions of other social actor(s) in ways that favor the empowered actor's will, interests, and values." He further considers communication as "the sharing of meaning through the exchange of information" (Castells, 2013, p. 54). Beyond Castells' agnosticism in clarifying precisely how contemporary communication power may entangle, compete, or cohere with our established scholarly understandings of state power, certainly, the rise of social media has provided a significant communication revolution that changes how power relations are constructed and practiced in our society (Castells, 2007; Owen, 2015).

The fact that Chinese state media can distribute information globally via Western platforms constitutes an enormous transformation that a rising power has the potential to influence the attitudes and perceptions of audiences through communication. That is, China has the potential to globalize its propaganda practice via Western platforms. To understand the transformation more precisely, this dissertation proposes a framework of globalizing propaganda to theoretically investigate the rise of China on Western platforms. In this dissertation, I consider propaganda as the production and dissemination of information, including facts, rumors, and misleading messages, to purposefully influence and distribute public opinions. Globalizing propaganda, therefore, refers to the expansion of such practices into global communication sphere, aiming to affect people of foreign countries. While recent literature suggests that propaganda practices have involved multiple actors (Woolley & Howard, 2018), in this project,

propaganda is mainly conducted by state-sponsored actors like Chinese state media CGTN for deliberately displaying China's power and meantime influencing others' attitudes and perceptions.

Scholars in several disciplines have analyzed the relationships between power and communication. First, communication and media researchers have extensively examined the political implications of new communication technologies (e.g., Bennett & Segerberg, 2012; Howard, 2006; Howard & Hussain, 2013; Papacharissi, 2015). The scholarship of championing the democratic potential of distributed media and networked communication proposes that there has been a positive association between digital media use and democratic transformation, suggesting that new communication technologies can challenge the legitimacy and stability of centralized authoritarian regimes (Bailard, 2012; Esarey & Xiao, 2011; G. Yang, 2009). For example, some suggest that social media platforms enable democratic development by lowering transaction costs, providing alternative information, and facilitating collective actions (Valenzuela, 2013; G. Yang, 2009). Ubiquitous Internet access has been expected to bring political changes to non-democracies (Stoycheff & Nisbet, 2014). By contrast, the competing perspective cognizant of state repression suggests that the widespread growth of new communication technologies can, instead, empower authoritarian stakeholders to bolster regime interests and capabilities (Morozov, 2011; Pearce & Kendzior, 2012). These scholars claim that social media cannot simply undermine authoritarian regimes because state actors often have the reigning capabilities to control new technologies' infrastructural, cultural, economic, and operational prerogatives (Svensson, 2014; Youmans & York, 2012).

Political scientists also invest in articulating how state power can be strengthened and restricted through communication in both democracies and non-democracies (e.g., Bimber, 2003;

Hindman, 2008; Prior, 2007; Roberts, 2018). Compared to communication researchers who focus primarily on media, sometimes too endogenously, political scientists are more attentive to the roles that political actors and institutions play in the process of power distribution via communication, as well as various strategies adopted by state actors for repression (Farrell, 2012). Disciplinarily, political science often examines how centralized state power can increase the odds against the democratic affordances of social media platforms (B. Miller, 2018; Roberts, 2018). For instance, some argue that while new communication technologies can enhance political participation and civic engagement, such technologies also enable state power to improve social control and repression (King, Pan, & Roberts, 2017; Xu, 2021). According to these studies, state actors can manipulate the spread of information on social media, thus restricting citizens from accessing certain types of information and sources (King, Pan, & Roberts, 2013; MacKinnon, 2008; B. Miller, 2018). Others have also identified that authoritarian regimes adapt multiple, nuanced, and layered strategies to manage the spread of online information, rather than simply gradations of censorship at large (Han, 2018; Hassid, 2012; Lorentzen, 2014; Roberts, 2018).

Between the risks of juggling disciplinary foci, we should be careful to avoid the pitfalls of disciplinary determinism. For example, communication and media researchers concentrate closely on media content and media use while disregarding the large political and social contexts often changing underneath. As Howard and Hussain (2013) have found in their study of the Arab Spring uprisings of 2010-2012, some countries had deeper social and historical roots of rebellion long before the introduction of Facebook and Twitter. State-society relations also vary and diverge across societies, where news content and audience preferences may be an important but

small reflection of these larger conditions. Hence, it is often unclear whether and how state power can be displayed through the production of online news and information globally.

Moreover, many studies of communication and political science still suggest simply that authoritarian regimes are mainly interested in manipulating and controlling information flows within their borders while overlooking the observable fact that state actors themselves have unprecedentedly turned their focus outward to display and exercise power in global communication (Bastos & Farkas, 2019; Thussu, De Burgh, & Shi, 2017). In other words, while academic interests across communication and political science imagine that state powers are cautious and careful in handling social media in order to control and manage it at home, on the other hand the trends on the ground suggest that state powers are increasingly innovating, creating, and investing ambitiously in advancing state power, not limiting civic agency. The rapid growth of Chinese state media on Western platforms illustrates both this significant shift in state power through global communication and academic near-sightedness in being agnostic to it. That is, a major non-Western and non-democratic state power contending with the United States' role as a global superpower is steadily challenging and reshaping international information flows dominated by Western nations, and is doing so in part by wielding democratic platforms to further its non-Western interests.

Thus, the case of China's rise on Western platforms presents a notable challenge to established scholarly understandings of global and comparative political communication. In contrast to the prevailing literature, I argue that we need to move attention away from the democratic effects of social media in authoritarianism to the investigation of how state power can globalize its influences through communication, as exemplified in the case of global-digital China today. In other words, in addition to asking whether social media can challenge the

legitimacy of authoritarian regimes, we should also ask to what extent authoritarian interests could reshape, disrupt, and challenge the order of global communication landscapes so far dominated by Western states' interests. This also means that we need to avoid the prima facie focus of studying social media's impacts in political communication in such a way that a) does not take for granted that the impacts are only domestic, and thus b) moves beyond agnosticism of state-power, and importantly the differences within and across states altogether in a digitally interconnected world-system fundamentally dependence on global communication flows.

To do so, in this dissertation, I contend that China is actively and purposefully intervening in global communication for the purposes of framing national images, offering counter-flows of international information, and attracting foreign audiences. I reveal that China has implemented an additive approach to expand its propaganda beyond its territory in order to reach and affect audiences around the globe, not generally but rather very specifically with differentiated and nuanced audience engagement strategies. The additive and layered approach enables China to show and enhance its power in the global information landscape, suggesting that it has the potential to become a leading actor in global communication through scale and sophistication.

It is necessary to reimagine how social media could be harnessed by state actors to facilitate international propaganda[3]. Yet, there are three obstacles to drawing this goal into a scholarly engagement. First, although there are many theories that explain China's approach to communication at home or domestically (Jiang & Fu, 2018; Plantin & de Seta, 2019; Roberts, 2018; G. Yang, 2009), we still lack an understanding of how China's approach is implemented in

[3] International propaganda (i.e., the operation of propaganda abroad) is also called "external propaganda" or "foreign propaganda". I use these terms interchangeably in this dissertation.

the global context, to foreign audiences. If the Party-state cannot censor sensitive content on Facebook and Twitter beyond its borders, how then do state media tell the stories of China for global audiences? Second, previous literature on China's foreign propaganda is limited to examining the role of international broadcasting in Africa (Bailard, 2016; Wasserman & Madrid-morales, 2018; Wu, 2016), but it fails to investigate its operation on Western platforms. China's rise on Western platforms represents a qualitative and theoretically nuanced shift in wielding power via communication. Third, recent theoretical advancement in articulating this type of qualitative shift in international propaganda exists, but is limited to understanding Russia and mis-/disinformation campaigns (Elswah & Howard, 2020; Golovchenko et al., 2020; Lukito, 2020). Although these studies provide empirical evidence to understand the mechanism of foreign propaganda on social media, China's practices are different and hence require specific exploration and authentication.

Therefore, the overarching goal of this dissertation is to provide a theoretical perspective to understand the trends that characterize the practice and regulation of China's rise in global communication. Across three empirical studies, I reveal that China is proactively globalizing its propaganda apparatus to amplify its presence by offering China's stories and perspectives abroad, though its effectiveness is still in question. In particular, I unveil that the globalization of propaganda allows China to present itself as a culture and society rather than a polity and military power (Study 1). Then, I show that Chinese state media tend to highlight China's international economic connections when covering other foreign countries on Western platforms (Study 2). Finally, I find that corporate stakeholders of Western platforms have taken note and advanced their own efforts to regulate and curb the exercise of China's propaganda. This ultimately suggests that the full potential of China's globalizing propaganda strategy and

investments depends upon the governance dynamics surrounding Western social media platforms (Study 3).

Literature Review

To advance this study, I draw on three domains of literature. First, I examine existing studies from global and comparative political communication to determine how scholars theorize the transformation of global communication order (I). Second, I synthesize scholarship from propaganda studies to understand how state-sponsored propaganda has reemerged as an important topic in the field of communication research, and what is still missing in this recently exhumed Cold War literature (II). Finally, I draw on studies that specifically focus on China's propaganda and its expansion in global communication to assess how researchers have theorized China's approach to international propaganda (III).

I. The Transformation of Global Communication

Global communication was originally formed during the mid-nineteenth century when telegraph and submarine cables were deployed for fostering the exchange of economic and informational products between Europe and North America (Headrick & Griset, 2001; Hills, 2002). The transatlantic cables between Britain and Canada and the submarine cables in the Mediterranean not only helped the British government conduct long-distance control but also created the first international communication networks (Schiller, 2011). As a result, global media organizations like Reuters in the UK and Havas in France arose and fundamentally affected the flows of international news (Winseck & Pike, 2007, 2009). More importantly, the growth of global communication facilitated monopolistic power and controlled the means of information

distribution (Hills, 2002). This illustrates the power of global communication in shaping and reconstructing political and economic power, as well as information distribution in the world.

The US, France, and Germany used to be major players in global communication in the early twentieth century (Headrick & Griset, 2001). The introduction of telephone and shortwave radio networks in the early twentieth century allowed the US to challenge the British monopoly in global communication order (Hills, 2007; Schiller, 2011). The use of coaxial cables further strengthened the US dominance in international communication networks after World War II (Starosielski, 2015), and thus "Media are American" (Tunstall, 1977). Since the 1990s, the rise of the Internet, mobile communication, and social media platforms have significantly enhanced the dominance of the US in the global communication order (Parks & Starosielski, 2015; Schiller, 2011; Youmans & Powers, 2012). Consequently, they have also solidified the coherence of American power, by making other nations, media markets, and cultural affinities more accessible as well – exemplified in the rise of K-POP music, Bollywood cinema, and Turkish daytime television, for example (Jin, 2013).

Two important transformations have emerged during the past decade. The first is the shift from comparing media systems to hybrid media systems in which multiple stakeholders steadily interact with and interdepend upon each other in a complex system (Chadwick, 2017). The second transformation is the rise of non-Western media organizations with the purpose of offering the counter-flows of international information and reshaping global communication (Thussu, 2018; Youmans & Powers, 2012). In this dissertation, I underscore that these two changes fundamentally affect how state power is displayed, exercised, and restricted through communication.

First, during the heyday of American global power after the collapse of the Soviet Union, scholars argued that a country's media system was determined by sub-national structural factors such as the type of media market, political system, and journalism culture (Hallin & Mancini, 2004). The advancement of social media platforms, however, challenged traditional models of media systems initially proposed by Hallin and Mancini (2004). Rather than considering a country's media as an isolated system mainly determined by country-level factors, researchers soon claimed that current media systems are increasingly experiencing transformation and convergence (Mattoni & Ceccobelli, 2018; Nechushtai, 2018). As a result, media systems have become hybrid so that the production and dissemination of information are simultaneous integration and fragmentation (Chadwick, 2017). Multiple stakeholders, including old and new media, political actors, audiences, are integrated in the hybrid media systems for the purposes of shaping the information flows. This hybridity also foregrounds the complexity and transition of media and politics, meaning that we need to develop a new type of mode for thinking about and analyzing global communication. That is, we need to separate it from the presuppositions established during the Cold War, and after the collapse of the Soviet Union – both of which preceded the global digital transformation shaping today's world-system.

Second, while the current global communication order is largely owned and dominated by major Western countries and Western media, it is undergoing a significant transformation and evolution triggered by the growth of non-Western countries including China, India, Russia, and Qatar (Elswah & Howard, 2020; Thussu, 2018; Youmans & Powers, 2012). Echoing related shifts have been referred to by international relations scholars as, "the rise of the rest," "the re-centering of global power," "the Sino century," the Sino-Indian century," "the Asian Century," just to name a few (Amsden, 2001; Dollar, 2007). Therefore, the imbalanced information flow

from the West to the Other has been challenged and modified. More recently, as the widespread use of social media has made communication and media systems more global, connected, and hybrid than ever before (Castells, 2011; Chadwick, 2017; van Dijck, Poell, & de Waal, 2018), non-Western media agencies like Russia Today and Al Jazeera have increasingly reshaped and reconstructed international information flows (Diamond, Plattner, & Walker, 2016; Thussu, 2018). These layered transformations, while still ongoing, indicate the possibility that media organizations in non-Western countries are essentially destabilizing Western media dominance. As such, we need to systematically examine how countries like China are intervening in international information landscapes and what roles this may play in the transformation of the global communication order.

II. The Resurgence of Propaganda Research

Propaganda is conventionally defined as "a deliberate, systematic attempt to shape perceptions, manipulate cognition, and direct behavior to achieve a response that furthers the desired intent of the propagandist" (Jowett & O'Donnell, 2014, p.7). It is one of the major means for persuading and manipulating the public (Ellu, 1973; Lasswell, 1938). State-sponsored propaganda had provoked a great deal of scholarly interest during the first half of the twentieth century (Simpson, 2015). For example, Lasswell (1938) considered propaganda as the control and management of opinions and claimed that it served to mobilize hatred against the enemy. In addition, Lazarsfeld and Merton (1948) argued that the news media played a key role in disseminating propaganda and maintaining capitalist hegemony. While the early literature explored the role of propaganda during wars and conflicts, researchers suggest that propaganda

efforts are essential for consent-engineering in contemporary democratic societies (Carey, 1995; Herman & Chomsky, 2008).

It is noteworthy that propaganda operations do not always emphasize domestic audiences. Instead, foreign propaganda has been widely used to affect foreign publics and international politics. Nazi Germany, for instance, strategically employed radio broadcasts to disseminate war information before and during World War II (Adena, Enikolopov, Petrova, Santarosa, & Zhuravskaya, 2015). Similarly, BBC in the UK and Voice of America (VOA) in the US also actively broadcasted propaganda content abroad during wartime (Rawnsley, 1997). During the late twentieth century, broadcast networks have become the main arena for the practice of foreign propaganda (Gilboa, 2005; Sheafer & Gabay, 2009). Many countries continue to use government-funded media outlets, such as the BBC World Service (UK), VOA (US), Radio France Internationale (France), and Russia Today (Russia), to report international news from the perspective of the host country (Tsan Kuo Chang & Lin, 2014; Wright, Scott, & Bunce, 2020). These efforts to renew and develop a deeper understanding of news-based strategies have led to a more focused program of inquiry on propaganda and public diplomacy, which explores the ways by which foreign governments work to influence foreign public opinion through their broadcasting networks (Entman, 2008; Miladi, 2006).

As I noted early in this chapter, propaganda is the production and dissemination of information by state actors to purposefully influence and distribute public opinions. This definition is consistent with previous propaganda studies in three aspects. First, my idea echoes the classic definition proposed by Jowett and O'Donnell (2014), focusing on the deliberate and purposeful practice for manipulation and influence. Second, I consider states, particularly state-sponsored media, as the producers and spreaders of propaganda, which is consistent with

previous studies focusing on VOA and other state media practices in democratic countries (Gilboa, 2005; Rawnsley, 1997). Third, I also recognize the expansion of propaganda around the world. Although my definition of propaganda is related to prior literature, this dissertation shifts our attention to the understanding of globalizing propaganda through Western platforms. As I will discuss in detail in this chapter, the shift suggests a new way of thinking and analyzing propaganda in the social media age.

The term propaganda was considered as a negative connotation, thus its altered version – public diplomacy – has been widely used by researchers to explore how nation-states connect with the public of foreign countries (Tsan Kuo Chang & Lin, 2014; Simpson, 2015). Public diplomacy refers to state-sponsored communication strategies aiming at persuading the public of other countries (Malone, 1985). The main purpose is to cultivate "favorability toward the practicing country" among foreign audiences (Entman, 2008, p.88). The closely-related concept of soft power indicates a nation's ability to affect foreign publics and governments through cultural attraction and resonance rather than hard power (e.g., military might or economic coercion) (Nye, 2004). Soft power works through its ability to attract rather than enforce, and fits within the larger strategies of public diplomacy as an important means to improve a country's international image (Nye, 2008).

Furthermore, the proliferation of social media platforms enabling multi-directional communication and interaction requires us to explore new forms of propaganda that have emerged in the new media environment (Castells, 2013). Researchers claim that foreign propaganda today works by directly engaging foreign citizens in conversations and emphasizing interaction, engagement, and relationship building in a flexible and decentralized media environment (Bjola & Holmes, 2015; Pamment, 2012). The growing use of social media by a

country facilitates nation-branding activities and reputation management through direct interaction with foreign publics (Aronczyk, 2013).

The recent growth of foreign propaganda and mis-/disinformation campaigns has brought propaganda back into communication research (Col Jarred Prier, 2017; Golovchenko et al., 2020; Woolley & Howard, 2018). More recently, political actors around the world are increasingly weaponizing social media for political purposes (Farkas, Schou, & Neumayer, 2018; King et al., 2017; Xia et al., 2019) and this has raised growing concerns regarding information manipulation across the world (Bimber & Gil de Zúñiga, 2020; M. L. Miller & Vaccari, 2020). For example, studies have examined how Russia can apply Western platforms such as Twitter and YouTube to spread disinformation and asymmetrically impact social media users, arguing that authoritarian regimes can enhance their influences in the social media age (e.g., Freelon et al., 2020; Golovchenko, Buntain, Eady, Brown, & Tucker, 2020; Lukito, 2020). Such "information disorder" (Wardle & Derakhshan, 2017) and "computational propaganda" (Woolley & Howard, 2018) have significantly challenged the role of communication in political life and global affairs.

Foreign propaganda today comprehensively leverages social media and automation techniques, aiming to integrate political agenda into the online information environment. Various tactics are adopted, ranging from state-sponsored trolling and mis-/disinformation campaigns aiming to mislead people and disrupt public opinion (i.e., black propaganda) to public diplomacy carried out by state-funded media focusing on soft power (i.e., white propaganda) (Elswah & Howard, 2020; Lukito, 2020; Xia et al., 2019). While the former has raised alarms since the 2016 US presidential election, the latter has received less attention probably because it is not overtly fake. Nevertheless, it is a common and effective way for foreign countries to instill in the public certain emotions and attitudes (Jowett & O'Donnell, 2014; Lasswell, 1938).

However, existing research on propaganda and social media focuses mainly on Russia's efforts (Elswah & Howard, 2020; Golovchenko et al., 2020; Lukito et al., 2020), whereas little attention has been paid to understand how China adopts social media platforms for propaganda operation and information manipulation. In fact, Chinese state media are vociferously producing news content on Western platforms, equaling and oftentimes outnumbering the online followers of the incumbent news agencies (Timmons & Horwitz, 2016). As China's news agencies surge on platforms that Chinese citizens are banned from accessing, we need to investigate how this might reshape the understanding of international propaganda on social media platforms. In addition, there is considerable research on the subject of black propaganda including mis-/disinformation campaigns and social bots (Woolley & Howard, 2018; Xia et al., 2019), yet hardly any work has addressed how state actors produce news stories and how audiences engage with the practice of white propaganda on large platforms like Facebook. Therefore, this dissertation interrogates how the intervention of state power reshapes and reconstructs news production on social media platforms.

III. China's Propaganda and Its Expansion in Global Communication

China began to embrace information and communication technologies in the 1980s (Harwit, 2008; Zhao, 2010). The Party-state not only adopts emerging technologies for the purpose of economic growth and technological innovation (Hong, 2017), but also adaptively engages with information control and propaganda operations (Creemers, 2017; Han, 2018). The political and social implications of information and communication technologies in China have been long and widely discussed by communication scholars (Jiang & Fu, 2018; G. Yang, 2009) and political scientists (B. Miller, 2018; Roberts, 2018). In China, propaganda functions as

broader control systems led by the Party-state, aiming to persuade citizens and manufacture consent (Shambaugh, 2007). The Publicity Department of the CCP is the backbone of China's propaganda system (Brady, 2009). Traditional propaganda techniques include media control, indoctrinations, ideological education and exams, and mass mobilization (Brady, 2009; Shambaugh, 2007). Previous research has claimed that China has strategically updated its propaganda systems since 1989 (Brady, 2009). The rise of social media offers new opportunities for improving propaganda in the era of Xi Jinping (Creemers, 2017).

Domestically, China has launched multiple online campaigns including the use of popular culture and automation to modernize propaganda on platforms (Bolsover & Howard, 2019; Han, 2018). For instance, the Party-state has promoted digital persuasion by actively adopting social media and fostering patriotic users (Chen, Kaye, & Zeng, 2021; Han, 2018). Meanwhile, these initiatives emphasize Chinese President Xi Jinping and portray him as a political idol (Repnikova & Fang, 2018). In addition, automation and state-sponsored commenters (i.e., 50-cent party) are widely used by the Party-state to disseminate pro-regime content and distract online opinions on social media (Bolsover & Howard, 2019; King et al., 2017). These efforts purport to persuade people using popular culture and digital platforms, indicating that China is extraordinarily adept in leveraging new technologies for propaganda works (Creemers, 2017; Han, 2018).

At the same time, the Chinese government launched media "going-out" policy in the early 2000s, seeking to reshape its national image and affecting both overseas Chinese and foreigners (Brady, 2015). Researchers argue that the Chinese government has in fact become a skilled player – arguably leading the way in the most cutting-edge advancements of foreign propaganda (Kurlantzick, 2007; Min & Luqiu, 2020; Scott, 2015; Wang, 2011). China's broadcasting media, for instance, are competing with other major global players like CNN and

BBC in Africa, and have been increasingly engaged by China's leadership to serve the state's public diplomacy goals (Gorfinkel, Joffe, Van Staden, & Wu, 2014). In addition, state-owned media like Xinhua and People's Daily strategically employ Twitter and Facebook to compete with Western mainstream media and frame China's policies in a favorable light (Huang & Wang, 2020; Liang, 2019; Nip & Sun, 2018).

Notably, China has devoted significant resources to improve foreign propaganda after Xi Jinping came to power in 2012 (Tsai, 2017). For example, the government rebranded CCTV's international broadcasting under the name CGTN in 2016. Xi further announced that Chinese media should "tell China's story well, spread China's voice well" (AP, 2016). This shows China's attempt to influence and control the global information landscape by generating news stories for global audiences.

Nevertheless, previous studies on China's foreign propaganda focus predominantly on China's international broadcasting in Africa (Bailard, 2016; Wasserman & Madrid-morales, 2018; Wu, 2016), much less work has been done on investigating how Chinese media employ platforms like Facebook and Twitter to disseminate propaganda and attract foreign publics. Moreover, others have explored the institutional structure and process of propaganda in China (Brady, 2015; Creemers, 2017), but few have attempted to examine the content structure of globalizing propaganda. If the official aspiration is to "tell China's story" and "spread China's voice", then how do state media achieve this goal by producing news content? How do global audiences engage with these stories? And how could social media platforms regulate the operation of foreign propaganda?

A Framework of Globalizing Propaganda

In this dissertation, I propose a theoretical framework that identifies and contextualizes the relevant stakeholders, components, and information flows of globalizing propaganda. The framework lays out some of the important trajectories of globalizing propaganda and is based on three domains of literature I reviewed. In particular, studies on global and comparative political communication recognize the shift toward a hybrid system and the rise of non-Western nations (Chadwick, 2017; Thussu et al., 2017). Propaganda research suggests that researchers need to investigate how foreign countries and international news have been reshaped and reconstructed by propaganda efforts (Ellu, 1973; Zollmann, 2019). Recent literature on computational propaganda further indicates the importance of social media platforms in the practice of international propaganda (Woolley & Howard, 2018). Finally, prior studies on China's propaganda hold that Chinese state media are purposefully framing China in favorable ways and offering China's perspectives for international affairs (Huang & Wang, 2019; Nip & Sun, 2018).

Building upon these scholarships, I argue that there are four stakeholders in the operation of globalizing propaganda: the host country (i.e., China), global audiences, guest countries, and social media platforms. Further, there are two components that link these stakeholders: practice and regulation. Therefore, a comprehensive analysis of globalizing propaganda requires researchers to examine the relationship among these stakeholders. First, the *practice* of globalizing propaganda refers to the production and consumption of propaganda content on social media platforms. In other words, it explores what content has been provided by the media of the host country, as well as how global audiences engage with propaganda content on social media platforms. I further distinguish the practice into two aspects. The first is related to the coverage of the host country. In globalizing propaganda, the main purpose is to improve the

national image and reputation of the host country in order to affect global audiences. The second aspect involves the coverage of foreign nations (i.e., guest countries). This shows how international news has been shaped and how other countries have been reported by the host country. Hence, the practice component explains how the host country adopts social media platforms to cover its own stories as well as the stories of the other countries. This component hence helps us understand how propaganda has been globalized and how global audiences react to such practice.

Second, in a hybrid media system, the production and consumption of news should be considered as interactions between multiple stakeholders including news media, state actors, audiences, and social media platforms. Therefore, my framework also takes into account the role of platforms in globalizing propaganda. In particular, the connection between the host country and the platforms examines the *regulation* of globalizing propaganda, as social media platforms have the capacity to moderate and control information produced by propaganda sources. Here I define regulation as a system of rules, norms, and policies managing and governing users and content of an online community. The use of Western platforms for international propaganda means that the host country has to depend upon these platforms for achieving its political goals. As a result, Western platforms can govern and manage information flows offered by the host country, and the regulation could restrict the dissemination of globalizing propaganda. This component thus helps entail an expansion of previous studies focusing mainly on news media and audiences by recognizing the role of platform regulation.

Overall, the proposed framework provides an overarching view for exploring and investigating the globalization of propaganda. It also considers the globalization of propaganda

as an integrated system that has different stakeholders and components. Thus, my framework contributes to the understanding of international propaganda endeavors in the social media age.

Methodology

Challenges in Studying Globalizing Propaganda

The most common challenge in studying globalizing propaganda lies in avoiding the tendency of disciplinary determinism and methodology determinism. Disciplinary determinism occurs when a researcher relies exclusively on her or his own field, thereby omitting the corpus of knowledge offered by other disciplines. Consequently, such determinism will limit the scope and boundaries of academic research. As I have discussed in this chapter, communication and media researchers have paid particular attention to the democratic potential and constraint of digital technologies in authoritarian regimes. Although this focus has produced a significant body of literature about state power and social media, it fails to recognize the fact that state power can expand and globalize its presence and influence through communication. To overcome disciplinary determinism, I focus on interdisciplinarity to develop this dissertation project. Rather than debating whether social media can democratize authoritarian regimes, I argue that we need to think differently about how authoritarian regimes can leverage social media for political goals. The shift of thinking requires us to synthesize knowledge from traditional disciplines, discover gaps in our knowledge that lie between traditional disciplines, and make knowledge more relevant to society. In this regard, interdisciplinarity signals the importance of synthesis and integration.

Methodology determinism occurs when a researcher depends merely on one or two specific research methods while overlooking the possibility of other methods and analytic techniques. This type of challenge will restrict the way by which theories are developed and tested, and consequently, restrain the exploration of new phenomena. Indeed, traditional quantitative methods in social sciences were designed to produce inferences about social actions (King, Keohane, & Verba, 1994). In the field of communication, researchers are often interested in the antecedents and consequences of media use, and they achieve the goal by analyzing the attitudes, perceptions, motivations, and behaviors of people. Methodologically speaking, the media effect approach is concerned almost exclusively with self-reported data and linear models. While this approach does help researchers investigate the implications of media in Western democratic countries, I argue for a different analytical frame that treats communication as political and social practices that have multiple actors including institutions, governments, users, and platforms. This is particularly important in global communication and comparative political communication because researchers usually lack detailed and reliable individual-level data to test their theories, and more importantly, the individual-level concentration may ignore the cultural and social contexts. In this dissertation, I start with the assumption that a communication process contains multiple actors such as media outlets and foreign countries. The multiplicity suggests that we need to investigate not only individual-level factors but also the role of other actors in the process.

In recent years, computational social science has exploded in prominence to study how power is exercised through communication. Compared with traditional approaches used in communication and political science, this new scholarly group tends to develop computational methods to analyze large-scale textual and behavioral data (Lazer et al., 2020). This approach

has provided more alternatives to address methodological challenges and generate patterns and inferences from massive datasets (Molina & Garip, 2019; Shah, Cappella Ramesh, & Neuman, 2015). Of course, computational social science also has its own challenges. It is possibly the best time for communication research not only because researchers can access large amounts of data and powerful computational tools, but also because almost every aspect of politics, culture, and economy has been enabled via communication. On the other hand, it is the worst of times due to the difficulty of evaluating the data-generating process, the rapid change of platforms' policies, as well as the influence of tech companies on academic inquiry.

Research Methods

To address the methodology determinism, I adopt three research methods to analyze China's globalizing propaganda. This section offers a brief introduction about these methods and more details will be offered in Chapters 2 – 4. First, automated content analysis is used to analyze news content offered by Chinese state media on Western platforms. The big data and computation revolutions have offered remarkable tools and massive textual data (Evans & Aceves, 2016). Rather than human coding a sample of data, researchers now can leverage automated content analysis to categorize and explore large amounts of textual data. This approach has been widely employed to examine various topics in social sciences, including political discourse (Stewart & Zhukov, 2009), comparative politics (Lucas et al., 2015), newspaper coverage (DiMaggio, Nag, & Blei, 2013), and social media (Barberá, 2015). In this dissertation, I employ dictionary-based approach and supervised learning method to classify textual data into a variety of categories, such as news topics and news sentiment (Study1, Study 2, and Study 3). The reason is that I already know the outcome and categories of these texts, thus

both dictionary-based and supervised learning methods allow me to examine large amounts of data. I will discuss the detailed methods in the next chapter.

Second, I argue that we must look beyond traditional analytics that do not vary at more than one level. While researchers have discussed the benefit of multilevel modeling techniques modeling (also known as linear mixed-effect models, mixed models) in communication research (Pan & McLeod, 1991), it is until recently that empirical studies begin to utilize this method to understand various communication phenomena (Hayes, 2006). Compared to statistical models focusing on one-level observations, multilevel modeling takes into account the fact that human behaviors are influenced by both individual factors like motivations and structural factors like media environment (Hayes, 2006; Snijders & Bosker, 1999). Recently, communication studies have used multilevel modeling to study topics like media supply (Althaus, Cizmar, & Gimpel, 2009), news exposure (Strauß, Huber, & Gil de Zúñiga, 2020), and civic engagement (Ceccobelli, Quaranta, & Valeriani, 2020). Multilevel approaches are particularly appropriate for my dissertation research, given the fact that my data are organized at more than one level. This also means that the units of analysis will not be the same in this dissertation. This approach enables me to examine China's globalizing propaganda at the content-level, country-level, and daily-level (Study 2 and Study 3).

Finally, I rely on time series analysis to understand the change of globalizing propaganda over time. Compared with cross-sectional data, time series analysis enables researchers to examine temporal dynamics and social processes over time (Box-Steffensmeier, Freeman, Hitt, & Pevehouse, 2014). Recent communication studies have adopted time series to investigate user behavior on social media (Lukito, 2020; T. Yang & Peng, 2020). Given the fact that I collected

massive amounts of data over time, time series approach will help me systematically explore the patterns and dynamics of my data (Study 1, Study 2, and Study 3).

Data

This dissertation project draws upon two sources of data. The first is a dataset consisting of news content created by Chinese state media on Facebook. The first phase of data collection was to determine appropriate Chinese media organizations on Facebook. Three standards were used to identify targeted media (i.e., Facebook Pages): 1) the Page must be operated by the CCP or Chinese government, 2) each media Page must have been verified by Facebook, and 3) each Page should post substantive English-language content. By doing so, I initially identified eleven Chinese state media on Facebook, and seven of them produced regular news content in English.

These seven media outlets include televisions (CGTN, CGTN America, CGTN Africa), newspapers (People's Daily, Global Times, and China Daily), and news agency (Xinhua). Thus, they cover the full range and diversity of China's state-led news media operating on Facebook. In the second phase, I used Facebook's Application Programming Interface (API) to collect the full population of news content and data about audience attentiveness. The final dataset was made organizing each media from the date of its creation (ranging from 11/5/2009 to 5/2/2013) to June 30, 2017[4]. Overall, the dataset includes 266,772 posts and related data and is used to examine the practice of China's globalizing propaganda.

The second dataset is about Chinese media on Twitter. Following the same approach, I first compiled a list of Twitter accounts that are operated by Chinese media organizations and

[4] Facebook changed its API policy in September 2017, so researchers are restricted from collecting data from public pages.

then selected those are: 1) verified by Twitter, and 2) actively producing English news. This yielded 30 media accounts. Next, I relied on Twitter's API to collect data from these accounts. I gathered data in a consecutive 60-day period between July 17, 2020 and September 14, 2020. I chose this period because Twitter announced that it would add labels to "accounts that are controlled by certain official representatives of governments, state-affiliated media entities" in order to "provide additional context" on August 6 (Twitter, n.d.). The label appears on the profile pages of flagged accounts and on the tweets posted and shared by these accounts. Overall, this dataset consists of a total of 49,126 tweets and is used to explore the regulation of China's globalizing propaganda.

Roadmap

In Chapter 2, I examine the practice of China's globalizing propaganda. I first show that Chinese state media produce a curated selection of news stories by focusing on the cultural and social aspects of China and casting the host country in a positive light. Next, I examine predictors of audience engagement with Chinese media on Facebook. The results suggest that soft news and China-related content receive more likes but fewer shares from global audiences. The mixed results suggest that China's globalizing propaganda has attracted audience engagement while the effectiveness of this practice may vary depending on the type of engagement metrics. These findings advance the understanding of how state media "tell China's stories" for global audiences on Western social media platforms.

In Chapter 3, I analyze the practice of international news coverage. In addition to telling China's stories, another important goal of globalizing propaganda is to shape the images of foreign nations and international affairs, because this could influence how people understand and

perceive other countries. I first reveal the fact that Chinese state media generate systematically different news for foreign nations. I then test the hypothesis that the structure of international news is primarily driven by three factors: national traits, economic connections, and negative events. The findings of this study suggest that economic connections (e.g., import and export) are positively associated with the amount of and the sentiment of international news. I also find that Chinese state media highlight China's connections with its countries involved in the Belt and Road Initiative[5]. This chapter provides empirical evidence to understand how China shapes international news coverage and what factors can explain this practice.

Chapter 4 examines the regulation of China's globalizing propaganda. Using a quasi-experimental design, I test the hypothesis that labeling state media could reduce people's actual sharing of propaganda information on social media platforms. By analyzing tweets posted by Chinese media accounts before and after Twitter's practice of labeling state-affiliated accounts, I find that flagged media accounts lost around 4 to 60 percent of news sharing. I also find that the effect of flagging state media on audience engagement occurs immediately after these accounts are labeled, and it also leads to a long-term reduction, particularly for political content. This chapter reveals that social media platforms have the potential to regulate the operation of globalizing propaganda.

Finally, in Chapter 5, I integrate the findings from three empirical studies and suggest that we need to move from the focus on domestic information control and mis-/disinformation campaigns into the exploration of globalizing propaganda. The findings presented in this dissertation suggest that China has proactively and purposefully leveraged Western platforms for

[5] Belt and Road Initiative is a global infrastructure development strategy adopted by the Chinese government in 2013 to invest in over 65 countries in Asia, Africa, and Europe.

improving its national images and promulgating its point of view. Moreover, while global audiences actively engage with the practice, these platforms can regulate and restrict the expansion of China's propaganda. I conclude by discussing future research directions.

Chapter 2 National Image-Crafting: Telling China's Stories (Study 1)[6]

Introduction

As I have noted, communication scholars and political scientists frequently claim that China's approach to communication is to remove and/or restrict the production of information at home (King et al., 2013; G. Yang, 2009). However, this approach fails to recognize that China also provides content for the global information landscapes. In Chapter 1, I propose a framework that systematically examines four actors involved in the practice and regulation of globalizing propaganda. Based on the framework, Study 1 analyzes how Chinese state media produce news about China on Western platforms, and how audiences engage with the practice. I argue that this is the first step to understand globalizing propaganda as it focuses on the host countries and global audiences.

In Study 1, I examine the practice of globalizing propaganda on Facebook. To be sure, Facebook has become a globally popular platform for news production and consumption and surpassed Google as the main traffic source for online news and information (Ingram, 2015). Western mainstream media, such as CNN, Fox News, and BBC, have adopted Facebook to distribute news content and attracted tens of millions of online audiences. Yet, these media

[6] An earlier version of this chapter received the Top Student Paper Award from Public Diplomacy Interest Group at the 68th ICA (International Communication Association) Annual Conference.

outlets are not the most tuned-into sources of online news on Facebook. As I have mentioned in Chapter 1, Chinese state media are the leading actors on Facebook.

In fact, Western platforms like Facebook are now rife with English-language posts and videos generated by Chinese state media for global audiences (Timmons & Horwitz, 2016). For example, CGTN has more Facebook followers than any other news media, and other news agencies like People's Daily and Xinhua have attracted more than 80 million followers on Facebook[7]. It is thus fair to say that Chinese state media are the most popular sources for the supply of international news on Facebook – the most popular social media platform around the globe. Interestingly, this story is more complicated by the fact that Facebook is technically blocked in mainland China, meaning that Chinese audiences do not have access to these Chinese media on Facebook. Therefore, the targeted audience of these official media is global Facebook users instead of Chinese people.

While Chinese state media have been present on Facebook rather briefly, they have been growing exponentially. What does this shift potentially indicate for scholars studying global and comparative political communication? On the one hand, the publicly stated goal of this media practice on Facebook is to support China's public diplomacy imperative by "tell[ing] China's story well, spread[ing] China's voice well" (AP, 2016). On the other hand, addressing this practice requires adopting Facebook to spread news content expressly for global audiences. As Chinese state media are becoming the popular news sources on a platform that is blocked in China, it is hence important to understand the practice of this endeavor.

[7] A Facebook Page is a public profile specifically created by businesses, celebrities, politics or other organizations. Unlike personal profiles, Pages do not gain "friends" but "followers" or "fans", which are people who choose to "like" or "follow" a Page.

Study 1 addresses this puzzle from the theoretical standpoints of public diplomacy (Bjola & Holmes, 2015; Nye, 2008) and agenda-building theory (Lang & Lang, 1991). I also draw upon the associated corpus of knowledge stemming from studies of online news consumption (Boczkowski & Mitchelstein, 2013) and audience engagement (Zamith, 2018). First, previous studies have drawn attention to the use of news media to conduct international propaganda, arguing that state actors can work to influence foreign publics through international broadcasting (Sheafer & Gabay, 2009). In addition, a burgeoning literature on social media and news consumption has adopted audience metrics to explore how social media users engage with online news (Boczkowski & Peer, 2011; Bright, 2016; Napoli, 2011). As Chinese state media surge on Facebook serving global audiences, what are their strategies and activities? How do global audiences engage with Chinese state media? How might this reshape the understanding of how state actors globalize propaganda today?

Empirically, Study 1 draws on original data from seven Chinese state media on Facebook: CGTN, CGTN America, CGTN Africa, People's Daily, Global Times, China Daily, and Xinhua. By examining 266,772 posts and related data via computational methods, I find that Chinese state media build and deploy different agendas towards China and other countries. In particular, they reported China as a culture and society rather than a political system and also covered China-related stories in positive sentiment. I also find that global Facebook users do not always engage with China-related stories. Overall, these findings advance our understanding of China's globalizing propaganda on Western platforms.

Research Hypotheses and Questions

Chinese State Media Go Global

Today, China is progressively framing its national images as a peaceful and reliable actor in the international environment (Hartig, 2016; Wang, 2011). It has been noticed that Chinese state media have launched English-language channels and overseas newsrooms since the early 2000s (Nyri, 2017). The "going-out" policy of Chinese media is championed by the CCP and governments, aiming to promote China's global images and meantime compete with Western mainstream media (Lee, 2012; Thussu et al., 2017). In 2000, the Chinese government launched CCTV International for providing English news content abroad, and sequentially offering French, Spanish, Arabic channels. In 2009, China decided to implement media globalization strategy (i.e., going-out policy) to expand the influence of Chinese state media. As a result, Xinhua News Agency launched Xinhua News Network Cooperation in 2009, producing international news for global audiences. In addition, the press like People's Daily and China Daily provided its English edition in more than 70 countries. CCTV International channel was rebranded as CGTN (China Global Television Network) in 2016. These media initiatives suggest that Chinese state media have greatly increased their investment in global communication.

China's broadcasting media are competing with other major global outlets like CNN and BBC in Africa, and have been increasingly engaged by China's leadership to serve the state's public diplomacy goals (Y. S. Wu, 2016). Scholars have found that these state media seek to engage with global issues through content production and direct investment in local media (Gorfinkel et al., 2014; Wasserman & Madrid-morales, 2018). Furthermore, the sweeping

expansion of Chinese state media has produced more favorable public opinions toward China in African countries (Bailard, 2016). Other scholars add that the enhanced positive perceptions of China in African countries have been made possible by launching Africa-specific channels and news programs (Gorfinkel et al., 2014; Y. S. Wu, 2016).

However, early "going-out" activities relied mainly on the deployment of newsrooms and multi-language channels. In recent years, Chinese state media have devoted massive resources to Western platforms for globalizing propaganda. Facebook, Twitter, and YouTube are now rife with news produced by Chinese media such as CGTN and People's Daily (Huang & Wang, 2019; Nip & Sun, 2018). Previous studies have found that Chinese state media strategically adopt soft news to promote China's national images (Huang & Wang, 2020) and enhance China's foreign policy (Liang, 2019). Therefore, the use of Western platforms may fundamentally change globalizing propaganda, because authoritarian media can leverage these platforms for diffusing content and reaching audiences. Moreover, this also reflects the impact of the hybrid media system on propaganda operations, suggesting that we cannot consider propaganda as an isolated practice operated by media systems. Instead, we need to take into account the interaction among multiple stakeholders: media agencies, state governments, social media platforms, foreign nations, and global audiences.

News Production: An Agenda-Building Perspective

As I have noted, Study 1 investigates the news production and consumption of globalizing propaganda. To advance the analysis of news production, I draw on agenda-building literature to establish guiding expectations. Doing so allows me to move the traditional focus in

mediated public diplomacy and propaganda studies from the macro- and meso-level sites of observations of state policies and organizational interests to the micro-level site of observation where state interests may be expressed in the production and dissemination of information.

Agenda-building refers to the process whereby news media or other actors make certain issues and events more salient than others (Cobb & Elder, 1971; Lang & Lang, 1991). A relative concept agenda-setting explores the effect of issue salience in the media on public opinion (McCombs & Shaw, 1972). I adopt the theory of agenda building because this concept focuses on the construction process of issue prominence, so I can develop hypotheses about how state media tell China's stories.

Previous studies claim that political, cultural, ideological, and industrial factors have an impact on the process of salience formation (Nisbet, 2008; Sheafer & Gabay, 2009). In addition, scholars also suggest that the choice made by news professionals to report some issues but neglect others has an impact on public perceptions (Iyengar & Simon, 1993; Sheafer & Gabay, 2009). For example, prior work on international news has found that the more media coverage a country received, the more likely foreign audiences are to think this nation is important to their own nation's interests (Wanta, Golan, & Lee, 2004). Given the fact that the official goal of Chinese state media is to "tell China's stories", I expect that these media produce more China-related news on Western platforms:

H1: Chinese state media produce more China-related news than other nations' news

Moreover, state actors have also expressly urged news media to build and advance an agenda on Facebook to "showcase China's role as a builder of world peace" (AP, 2016). To satisfy this state mandate, Chinese media organizations should also offer a distinct variety of

topics about China in contrast to other nations. Therefore, I expect that Chinese state media tend to make China's national achievements salient (e.g., economic growth and international relations) and diminishing coverage of China's national challenges (e.g., political system and civil rights):

H2a: Chinese state media highlight China's successes including economic growth, technological innovations, and international relations

H2b: Chinese state media downplay China's challenges including political issues, civil rights, and environmental issues

In addition, scholars often employ the hard-soft distinction to identify news topics. Hard news refers to politics, public affairs, and economy, whilst soft news often indicates entertainment, arts, sports, and popular culture (Boczkowski & Peer, 2011). While some scholars have argued that the hard-soft distinction is perhaps elitist, others find it valuable to differentiate democratically and normatively more or less valuable content produced by news organizations. Previous research has found that hard news is a preferred genre of information pursued by state actors (Gilboa, 2005; Livingston, 1997) because this type of news coverage has the potential to influence people's attitudes toward public policies and official relationships (Fahmy, Wanta, & Nisbet, 2012).

The growing use of social media, however, has challenged this assumption. Recent work on social media and news consumption has uncovered a trend toward the softening of news, suggesting that audiences consistently read and like soft news such as culture, entertainment, and sports (Baum, 2003; Bennett, 2003; Boczkowski & Peer, 2011). Consequently, the focus in public diplomacy studies has started to shift to the "soft news model." It is increasingly argued

and observed that political actors and government-sponsored media are using social media to directly distribute nonpolitical news (Bjola & Holmes, 2015; Huang & Wang, 2020). Hence, I expect that the practice of Chinese state media on Western platforms follows this shift:

H3: Chinese state media produce more soft news than hard news

Finally, while the first level agenda building explores the differential emphasis in coverage of certain topics by news media (i.e., what to think), the second level agenda building concentrates on the sentimental attributes used by journalists to frame certain issues (Kiousis, Mitrook, Wu, & Seltzer, 2006). In other words, the second-level agenda building focuses on the way by which news media impact how to think about a topic (Lancendorfer & Lee, 2010). An important indicator used by communication researchers to observe attributes salience is the sentiment of the coverage: journalists can frame an event by focusing on either positive aspects or negative aspects, and this difference may influence audience perception (Iyengar & Simon, 1993; Scheufele & Tewksbury, 2007). Researchers have revealed that Chinese state media often reported the positive aspects of China's topics instead of negative stories and also tend to cover negative aspects of foreign nations in greater depth (Stockmann, 2011). Further, the more negative news a nation received, the more likely foreign audiences considered this nation negatively (Wanta et al., 2004). Thus, I predict that Chinese state media enunciate the positive attributes of China-related stories:

H4: The sentiment of China-related news is more positive than that of other nations' news

Audience Engagement and Content Features

As I have discussed in Chapter 1, my framework involves four stakeholders including global audiences on Western platforms. The analysis of news production provides empirical evidence for exploring how media "tell China's story", whereas the exploration of audience engagement helps understand how people interact with international propaganda. Compared with other media like broadcast networks, social media provide quantified indicators to measure and capture audience engagement (Napoli, 2011). Engagement hence has been considered as a metric to measure the spread and success of social media information (Zamith, Belair-Gagnon, & Lewis, 2020). In this study, I adopt a reception-oriented perspective of news engagement (Nelson, 2019) to investigate how social media users interact with globalizing propaganda.

Admittedly, new communication technologies have facilitated more precise methods to measure and quantify the behavior of audiences (Livingstone, 2019; Zamith, 2018). Metrics including "likes", "retweets", "shares", and "most read," for instance, have been used to measure how many people visit a Page, what they choose to read and share a story, and how long they spend reading it (Shoemaker & Vos, 2009). Consequently, news outlets can understand the popularity of their news content and focus on these data-driven audience metrics, and alter their news production choices (Bright & Nicholls, 2014; Couldry & Mejias, 2019; Napoli, 2011).

Certainly, many factors can affect whether audiences interact with a news story or not on social media. The existing literature on news values and shareworthiness has found that people's engagement decision is driven by a combination of interests and content features (Trilling, Tolochko, & Burscher, 2017). In Study 1, I focus on content factors to explore how audiences engage with globalizing propaganda on Western platforms. First, to satisfy the state mandate of

"tell the stories of China," it is important for Chinese state media to not only produce certain types of content, but also produce it in a way that will attract audience engagement on Western platforms. Thus, it is important and interesting to study how audiences engage with China-related news, since this is the main goal of globalizing propaganda. On the one hand, one could expect that social media users are more interested in China's news on platforms, and thus are more likely to interact with the content. This is because these audiences hold favorable attitudes toward China and/or Chinese state media produce more positive stories for China. On the other hand, it is also possible that audiences are less interested in China-related stories, let alone liking or sharing these messages on social media. Thus, I ask the following question:

RQ1: Does China-related news receive more audience engagement than other nations' news?

Second, recent research has found that social media users are more interested in soft news rather than hard news (Bright, 2016). Conceptually, soft news involves topics like sports, celebrities, entertainment, and culture, while hard news contains politics, international affairs, economy, and finance (Reinemann, Stanyer, Scherr, & Legnante, 2012). While journalists usually claim that politics and public affairs are more newsworthy than soft news, online audiences are increasingly consuming more soft topics like entertainment and sports (Boczkowski & Mitchelstein, 2013). Empirical research has found that social welfare and science and technology are frequently shared on social media by audiences, whilst political news does not attract comparable audiences' interest (Bright, 2016). Additionally, bizarre and unusual stories are more likely to be shared by Internet users (Boczkowski & Mitchelstein, 2013). Extending this line of research, I expect to find similar patterns for globalizing propaganda:

H5: Soft news receives more audience engagement than hard news

Lastly, in addition to the topics, audience engagement is also driven by the sentiment of news content. In Study 1, I consider news sentiment as the overall positive or negative tone of the news content. In particular, sentiment can not only affect how people perceive and think about information, but also influence information-sharing behavior (Kraft, Krupnikov, Milita, Ryan, & Soroka, 2020; Trilling et al., 2017). Recent studies have revealed that news items that contain positive sentiment are more likely to be selected and shared by social media users (Berger & Milkman, 2012; Kraft et al., 2020; Soroka, Daku, Hiaeshutter-Rice, Guggenheim, & Pasek, 2018). The explanation is that audience engagement is also a social behavior that facilitates people's expression and impression management (Berger & Milkman, 2012). People prefer to be perceived as positive by others (Berger, 2014). In turn, then, they are more likely to interact with positive content (Kraft et al., 2020). I expect this trend to be replicated here:

H6: Positive news receives more audience engagement than negative news

Methods

Data

Data for Study 1 were collected in two phases by organizing news content produced by seven Chinese state media on Facebook, as well as their associated audience-engagement meta-data. The first phase of data collection was to determine appropriate Facebook Pages. As discussed in Chapter 1, I employed three standards to identify the targeted media: 1) they must be official state news media organizations in China, 2) each Facebook Page must have been

verified by Facebook, and 3) each Page should post substantive English-language content rather than primarily Chinese-language news. In doing so, I initially identified eleven Facebook pages operated by Chinese state media organizations, and of these seven produced regular news content in English. These seven pages include broadcasting (CGTN, CGTN America, CGTN Africa), newspapers (People's Daily, Global Times, and China Daily), and news agency (Xinhua). Overall, these seven pages cover the full range and diversity of China's state news media operating on Facebook.

In the second phase, I relied on Facebook's API (Application Programming Interface) to collect the full population of news content and meta-data about user activities related to interacting with these pages' contents. Specifically, a complete local structured archive was made organizing each post made by each page since the date of its creation (ranging between 11/5/2009 to 5/2/2013), until a common end date of June 30, 2017. The meta-data for each post included: the original content of each post, the date of each post, created time, number of likes, shares, and frequency, date, and content of comments to each post. In sum, the dataset consists of 266,772 posts.

Table 2-1. Descriptive Statistics of Media Accounts

Facebook pages	Posts	Mean likes (SD)	Followers	Date created
CGTN	24,936	8,197 (15,497)	48,612,875	5/2/2013[8]
CGTN Africa	28,116	168 (520)	1,130,148	1/11/2012
CGTN America	18,662	194 (1,886)	1,688,874	8/22/2012
China Daily	35,510	793 (1,825)	36,636,166	5/25/2011
Global Times	43,320	683 (3,294)	18,854,657	1/6/2012
People's Daily	42,757	5,687 (9,901)	13,154,798	11/5/2009
Xinhua	73,421	425 (1,542)	11,436,605	4/6/2011
Total	266,772			

Note: Data were collected by June/30/2017.

Table 2-1 provides details about these accounts. It is clear that most of these accounts were created between 2011 and 2012, and they have obtained millions of followers on Facebook. In addition, the table also illustrates that there have variations in terms of news production and audience engagement among these seven state media accounts. For example, CGTN and Global Times generated large amounts of news on Facebook, but the former received more followers and likes than the latter. Moreover, Xinhua also actively provided news and information on Facebook, though it only attracted limited audience engagement. Overall, Table 2-1 suggests that Chinese state media have provided enormous content on the Western platform in order to

[8] CGTN initially used CCTV as the Facebook account name before 2016 when it was renamed by the Chinese government. Similarly, CGTN Africa and CGTN America used to be CCTV Africa and CCTV America before 2016.

globalize propaganda, whilst the attractiveness and engagement vary across these news organizations.

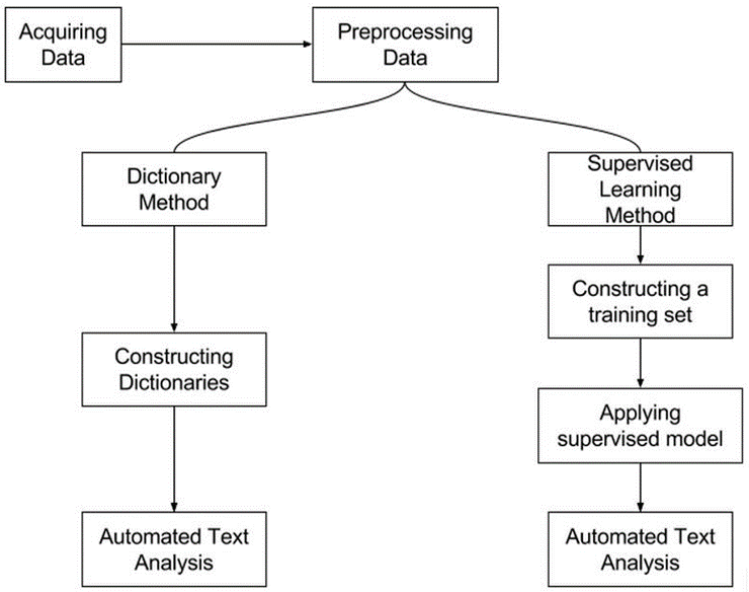
Analysis

With recent advancements in computational methods, large amounts of textual data are increasingly available for descriptive and causal inference (Evans & Aceves, 2016). Broadly speaking, three approaches are used to extract meaningful inferences from large-scale text collections: dictionary-based methods, supervised learning methods, and unsupervised learning methods (Grimmer & Stewart, 2013). More specifically, dictionary-based method is a nonstatistical endeavor that adopts predefined dictionaries to categorize a large corpus of texts (Young & Soroka, 2012). Supervised and unsupervised learning approaches, in contrast, are both machine learning approaches. While supervised learning approach relies on known categories to train statistical models for classifying vast amounts of text-based data (i.e., text classification), unsupervised learning method can discover new or unknown categories (i.e., topic modeling) (O'Connor, Bamman, & Smith, 2011).

In Study 1, I adopted dictionary-based and supervised learning approaches for large-scale textual analysis. Figure 2-1 provides an overview of the analytical process and procedures used in this chapter. To be specific, after acquiring the 266,772 posts, I first preprocessed data in order to reduce the complexity of textual data. The preprocess efforts included the following established data-mining steps: transforming text into the corpus, removing stopwords, punctuation, common words, uncommon words, and stemming (Lucas et al., 2015). For dictionary-based method, I created two nation-related dictionaries: a China dictionary was used

to assign news content into either China-related news or other countries' news, and a News country dictionary was adopted to identify whether a post mentioned foreign countries.

Figure 2-1. The Analytical Procedure of Dictionary Method and Supervised Method



To illustrate, the China dictionary included keywords about China, such as Chinese cities (e.g., “Beijing”, “Shanghai”), Chinese politicians (e.g., “Xi Jinping”), Chinese institutions (e.g., “State Council”, “People’s Bank of China”), and Chinese companies (e.g., “Alibaba”, “Tencent”, “China National Petroleum Corporation”). The logic of the dictionary-based method is that if the post contains keywords associated with China, then the linguistic system would consider this post as China’s news. Otherwise, the post would be labeled as non-China-related news. It is possible, for instance, that some posts involve both China’s keywords and other countries’ names. In this case, I still regarded this post as China’s news. Moreover, I also used the existing Sentiment dictionary for analyzing news tones (Young & Soroka, 2012). This dictionary contained 3,430 positive sentiment words and 5,718 negative sentiment words, allowing researchers to analyze the sentiment of textual data. I used R package “quanteda” to get a sentiment score for each post.

In addition, I adopted supervised methods to classify news topics. It is worthy to note that supervised methods rely on the assumption of “bag-of-words”. That is, the word order in a corpus is irrelevant for textual classification (Banks, Woznyj, Wesslen, & Ross, 2018). In other words, word positions will be dropped in the analysis and only the frequency and occurrence of words are used for classification. However, some information might be removed in the process since this approach simplifies text content and ignores the syntax of a sentence (Banks et al., 2018). In Study 1, the main goal of using supervised methods is to classify news posts into various news topics, and previous research has found that word frequencies alone can provide sufficient information for content classification (Welbers, Van Atteveldt, & Benoit, 2017).

Based on previous literature (Bright, 2016), I first identified fourteen news topics: accident and disaster, economy, politics and government, civil rights, military and terrorism,

international affairs, law and crime, health, science and technology, sports, education, environment and nature, society and family, culture and entertainment. Typically, the first seven topics are considered hard news items, while other topics are regarded as soft news. Supervised methods can assign each Facebook post to one of fourteen categories. Table Aa in the Appendix A offers examples of these news topics, and I also provide the concise version of the codebook used in the content analysis in Table A2 in the Appendix A.

Briefly, this approach included three steps. First, I established a training set for machine learning. The training set was a random sample representing the corpus so that human coders can develop an interpretive logic system for algorithmic classification (Grimmer & Stewart, 2013). I randomly selected 4,000 posts from the original dataset, and then I worked with a training coder to code these posts and tested intercoder reliability (Krippendorff's $\alpha = .83$). Second, these hand-labeled samples were used as the training set to train the machine to learn a set of parameters and therefore assigned the remaining documents into the categories.

I employed ensemble learning, which uses multiple learning algorithms to obtain better predictive performance, for classifying news topics (Aggarwal & Zhai, 2012). Four supervised learning algorithms were used in Study 1: Lasso and Elastic-Net Regularized Generalized Linear Models, Logistic Regression, Stabilized Linear Discriminant Analysis, and Random Forest. To evaluate the predictive performance, I randomly split the coded samples into an 85% training set and 15% test set, and then compared the machine coding with human coding for the test set. If three out of four algorithms achieve the agreement for classifying the post, then the result was considered correct. Otherwise, the classification was false. The ensemble learning approach received 75% average accuracy rate for the test set, which is reliable for further research. Finally, I employed ensemble learning to classify all posts in the original dataset.

Results

News Production: China as a Culture and Society rather than a Polity

This section explores what news stories have been produced by Chinese state media on Facebook. Figure 2-2 illustrates the time series change by news topics. The Y-axis is the number of weekly posts, and the X-axis is the month. Several patterns can be found in this figure. First, it is obvious that these media produced limited news content before 2013 (less than 250 posts per week). Second, we can observe that the number of posts increased to approximately 500 to 750 per week between 2014 and 2016. Notably, this amount soared to more than 1,500 per week after 2016, suggesting that Chinese state media were greatly using Facebook to circulate news for global audiences. One possible reason for this impressive increase is related to China's global investments and national branding. Hence, China needs news media to promote its global images and soft power in a global context.

Figure 2-2. The Number of News Post (by Topics)

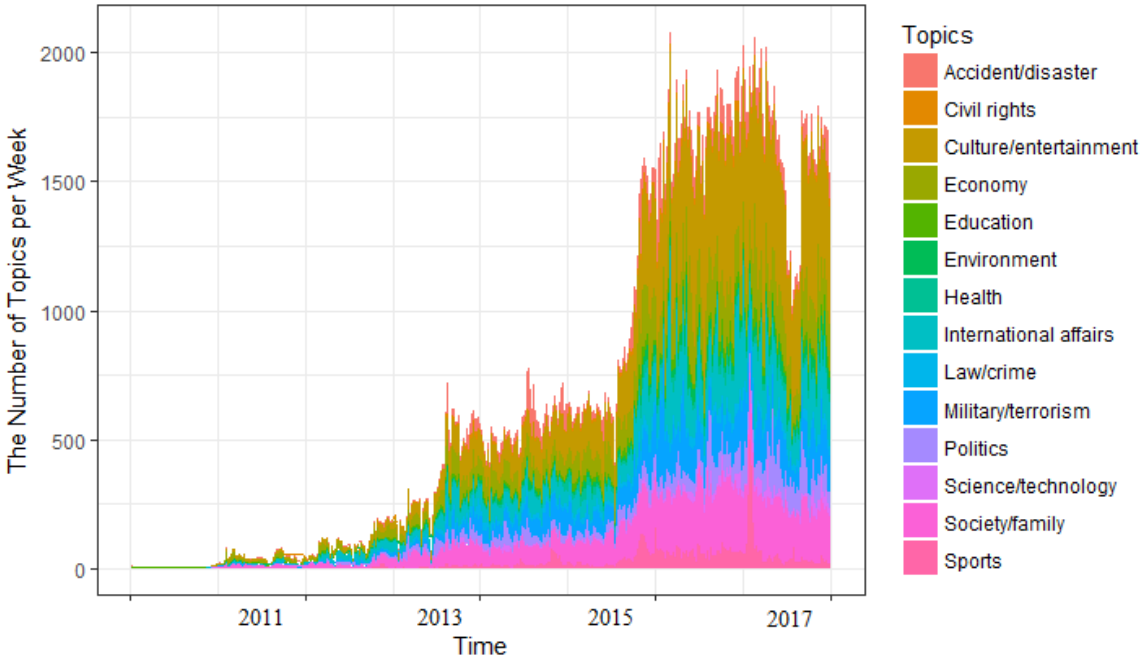
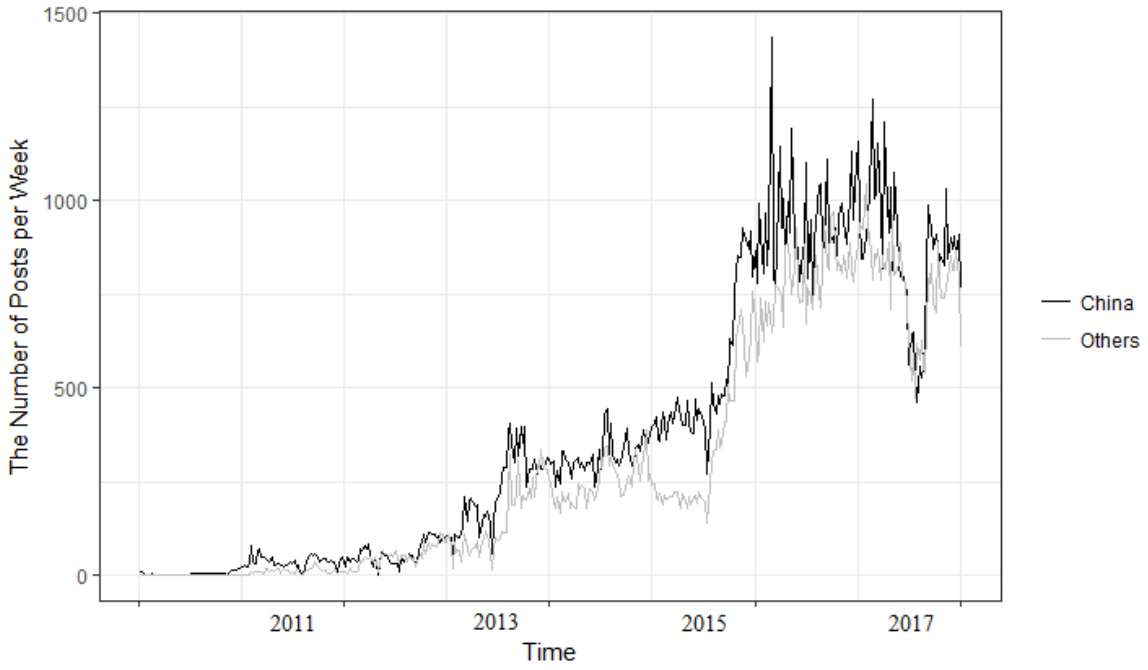


Figure 2-2 also demonstrates that some news topics were more prevalent than others. For instance, culture and entertainment (26%), and society and family (14%) were massively produced by Chinese state media over time. At the same time, economy, international affairs, and military and terrorism were also popular news topics. Together, these five topics contributed to approximately 72% of all news stories offered by these seven news agencies. By contrast, Figure 2-2 shows that news about accidents and disasters, civil rights, and law and crimes only constituted limited stories during the period.

Figure 2-3. Comparing the Number of News Posts between China and Other Nations

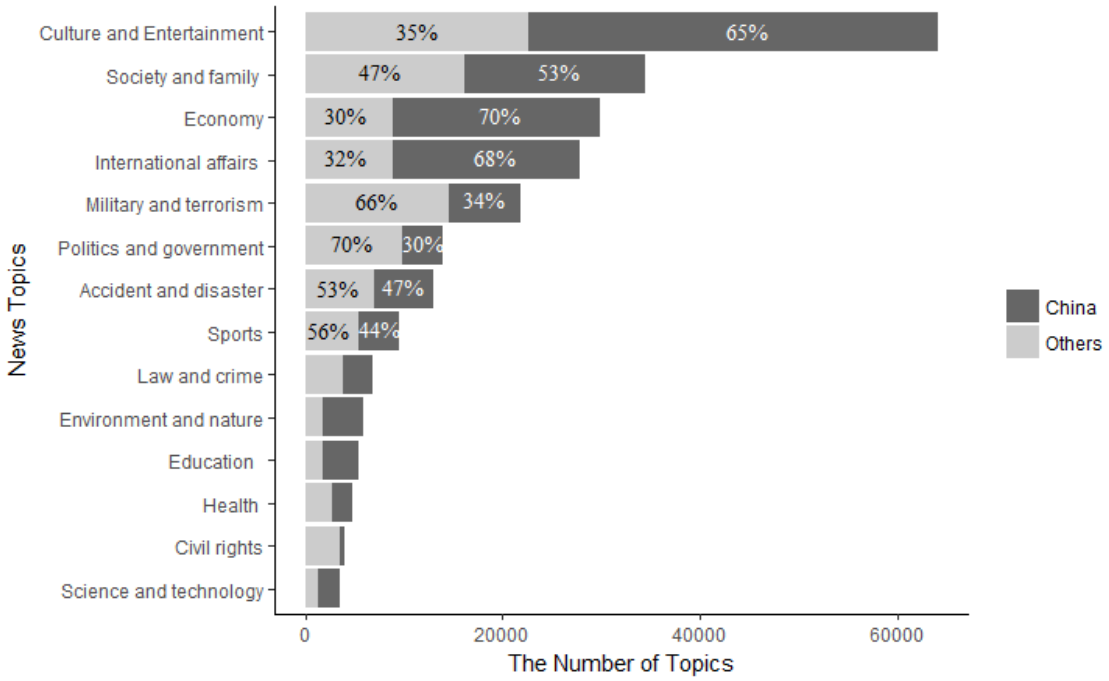


H1 expects that Chinese state media distribute more China-related news than other countries. As mentioned in Chapter 1, the official purpose of globalizing propaganda is to tell China's stories. I find that 56% of news was related to China with the rest focused on the stories of other nations. Figure 2-3 further compares China's news with others' news. While Chinese state media increased both China-related news and others' news on Facebook, it is clear that they constantly produced more China's stories on Facebook. Thus, these state media try to achieve the official goal of spreading China's voices and telling China's stories by first spreading more China-related news on Facebook. Further, the result of t-test indicates that the mean of China's stories and others' stories is different from zero ($t = 2.892$, $p = .003$). Thus, H1 is supported.

H2a expects that state media focus on China's successes including economic growth, technological innovations, and international relations, while H2b assumes these media downplay China's challenges including political corruption, civil rights, and environmental issues. To test these two hypotheses, I calculated and compared the proportion of each news topic for China and other countries (Figure 2-4)[9]. It is clear that China-related news is not always massively generated among these topics. More specifically, the vast majority of the economy (70%), international affairs (68%), and technology news (63%) focused on China's stories, whereas most politics (66%), civil rights (88%), and military stories (66%) covered other countries. Surprisingly, more than 70% of environmental news was China's stories.

[9] I used proportions rather than counts because Figure 2-2 already indicates significant variations among these news topics.

Figure 2-4. Comparing News Topics between China and Other Nations

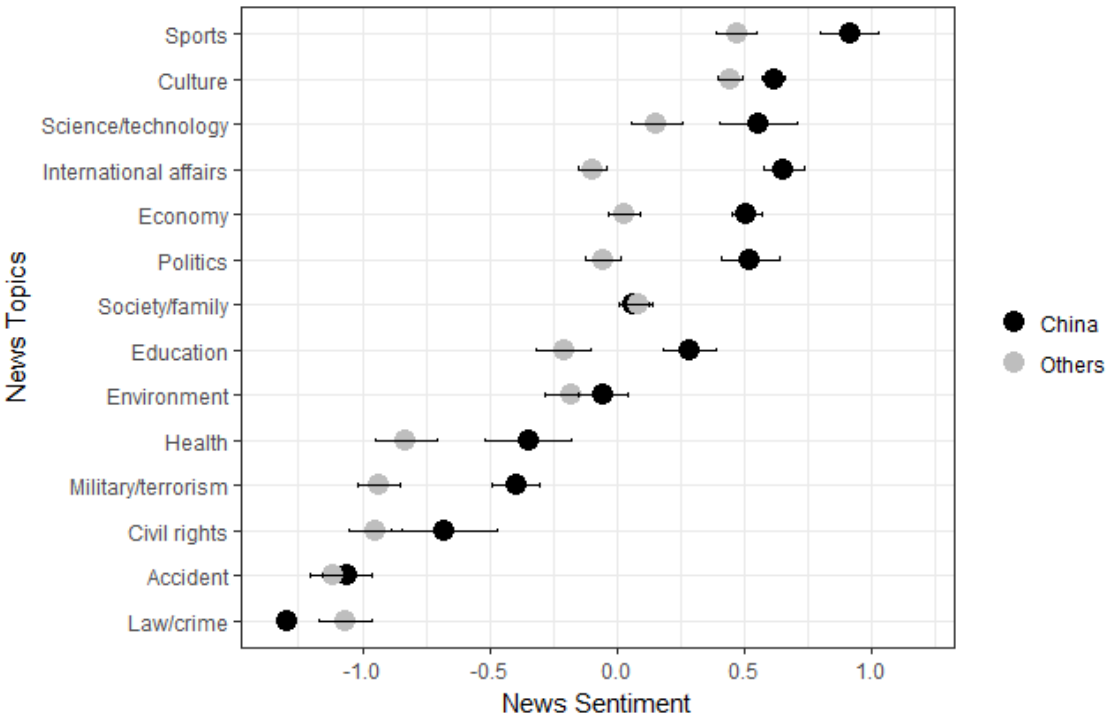


Furthermore, applying significance test reveals a statistically significant difference for China's achievements: economy ($t = 5.57$, $p < .001$), international relations ($t = 4.1$, $p < .001$), and technology ($t = 2.31$, $p < .05$). Meanwhile, politics and civil rights challenges also achieve significant differences, $t = 4.287$, $p < .001$ and $t = 7.075$, $p < .001$, respectively, suggesting that Chinese state media are more likely to cover politics and civil rights in other nations on Facebook. Therefore, these results support H2a and H2b. In addition, I also find a significant difference between China and other nations for the other three topics. While Chinese state media generate more news content for China's education, and culture and entertainment, they tend to distribute more posts for other countries' military and terrorism.

H3 expects that Chinese state media produce more soft news than hard news. To test this hypothesis, I first assigned these fourteen topics to a hard-soft dimension, and received 128,045

(48%) hard news and 138,727 soft news (52%). The result from a t-test reveals that this difference is not statistically significant (t = 1.006, p = .315). Thus, H3 is rejected.

Figure 2-5. Comparing News Sentiment between China and Other Nations (with 95% Confidence Interval)



Moreover, H4 predicts that the stories of China contain more positive sentiment, compared to stories of foreign nations. Figure 2-5 compares news sentiments of China and others. In general, sports, culture and entertainment, science, and international affairs had positive or neutral sentiments, whilst laws and crime, accident and disaster, and civil rights received negative ratings. Among these fourteen topics, China-related news achieved more positive ratings in twelve topics, including international affairs, politics, and economy. Moreover, nine topics obtained significant differences among these twelve topics. By contrast, the stories of other nations only obtained more positive sentiments in two topics (i.e., society and family, and laws and crime). However, only law and crime received a weak significant difference between the sentiment of China's news (M = -1.178, SD = .613) and that of other nations' news (M = -.972, SD = .682). Hence, H4 is supported.

Audience Engagement: Liking but not Sharing

The analysis of news production demonstrates that Chinese state media seek to tell the story of China using different agenda-building strategies, then to what extent do social media audiences engage with news provided by Chinese state media on Facebook? To examine audience engagement, I employ multivariate negative binomial regressions to predict audience engagement. Since the criteria variables likes and shares only have positive integers and are right-skewed (Likes: M = 2,107.76, Mdn = 218, SD = 7,106.34; Sharing: M = 126.98, Mdn = 8, SD = 1,708.61), negative binomial regression is a suitable tool to estimate count data with overdispersion (Gardner, Mulvey, & Shaw, 1995). All predictors are entered in negative binomial regression models to predict the outcome variables.

Table 2-2. Negative Binomial Models Predicting Audience Engagement

	Model 1 Likes	Model 2 Shares
Intercept	4.29 (0.01) ***	-1.91 (0.01) ***
Likes		0.88 (0.00) ***
Shares	0.78 (0.00) ***	
China-related news	0.37 (0.01) ***	-0.13 (0.01) ***
Soft news	-0.21 (0.01) ***	0.18(0.01) ***
News sentiment	0.02(0.00) ***	-0.02(0.00) ***
N	233,894	233,894

Note. Unstandardized coefficients with standard errors in parentheses.

* p < .05, ** p < .01, *** p < .001.

Table 2-2 reports the results. Model1 predicts the number of likes, while Model 2 predicts the number of shares[10]. RQ1 asks whether China-related news receives more engagement than non-China-related news. Model 1 shows that China-related news is positively associated with the number of likes on Facebook, $b = .37$, $p < .001$. However, I find that China-related news is negatively associated with the number of sharing, $b = -.13$, $p < .001$. This means that while Facebook users are more likely to like China's news, they are less likely to share posts that focus on China.

H5 assumes that soft news content is more popular than hard news. Again, Table 2-2 shows mixed results. While soft news topics are negatively related to the number of likes (b =

[10] I do not combine these two metrics into an index of news sharing, because they are not highly correlated (r = .31).

-.21, $p < .001$), these stories receive more shares on Facebook ($b = .18$, $p < .001$). H5 is hence partially supported.

Finally, H6 predicts that news with positive sentiment is more likely to be shared and liked by Facebook users. I find that news sentiment is positively associated with the number of likes on Facebook, $b = .02$, $p < .001$, but it is negatively related to the number of shares, $b = -.02$, $p < .001$. H6 is also partially supported.

Discussion

In this chapter, I investigate the practice of China's globalizing propaganda by focusing on the supply and demand of news on Facebook. As China is increasingly intervening in the global information landscapes, it is urgent to understand how state media wield Facebook as a vehicle to tell China's stories for global audiences and how users react to the practice of international propaganda. The results of Study 1 provide empirical support for the hypotheses regarding national imaging building. At the same time, I also find a somewhat contrasting picture about audience engagement. These findings suggest that while Chinese state media actively build agendas for boosting the non-political aspects of China in a favorable light, Facebook users do not always engage with China's stories.

The findings of Study 1 have several theoretical implications. First, I find that Chinese state media significantly increased the supply of news after 2015. This result is consistent with recent observations that China has devoted significant resources to improve its foreign propaganda, particularly on Western platforms (Huang & Wang, 2019; Nip & Sun, 2018; Tsai, 2017). The findings reported in this chapter further show that Chinese state media seek to tell

China's stories by focusing on three strategies: creating more China-related news, highlighting China's advantages, and creating favorable sentiment for China.

In addition, Study 1 suggests that state media outlets often focus on the coverage of China's strengths and advantages including economic growth, technological innovations, and international relations. At the same time, they do not frequently cover China's challenges like politics and civil society. This indicates that Chinese state media aim to portray China as a peaceful power in the field of technology, economics, and international affairs. As I have noted in Chapter 1, the official goal of the media going-out policy is to showcase China's role as a builder of world peace. Thus, the findings of Study 1 confirm that these state media highlight non-political issues for China.

To be sure, while these findings suggest that culture and entertainment stories are popular topics, certain hard news topics like the economy and international affairs are also frequently produced. These results indicate that Chinese state media are combining hard news with soft news to construct international agenda. On the one hand, some nonpolitical news is consistently distributed, and these stories get a large number of user's attention. As such, soft news has the potential to help a country improve its national images and attract audiences. On the other hand, hard news can also play an important role in improving China's image in the international arena, if these stories allow China to highlight its success in economics and international affairs.

The findings also suggest that Chinese state media do build distinct agendas for China and other nations. Previous studies have found that the government is using mass media to conduct international agenda building (Sheafer & Gabay, 2009). In Study 1, while the agenda of China often concentrates on culture/entertainment, economy, and international affairs, the

agenda of other nations focus on politics, military and terrorism, and civil rights. By doing so, state media can highlight China's successful aspects, and make China's challenges less salient. Meanwhile, these media frequently cover politics, military and terrorism, and civil rights for other countries, while downplaying these countries' economy, international affairs, and culture.

In addition to differential topic distinctions, I also find that China-related news often contains more positive sentiment than other nations' news. This indicates that Chinese state media are notably chipper when telling stories of China by reporting on positive aspects, and gloomier on the negative aspects of other countries. For instance, I find that stories of China's international affairs are often portrayed as positive content by these state media, whilst other nations' international affairs are covered negatively. These temperamental and tonal differences can have substantive implications. Previous research has found that negative content can lead to people's negative attitudes toward a country (Iyengar & Simon, 1993; Wanta et al., 2004). By portraying China as a more pleasant power, these state news agencies have the potential to influence people's attitudes toward the rise of China in a global context.

Moreover, the findings of Study 1 provide nuanced evidence to understand audience engagement and news consumption in the context of globalizing propaganda. I find that Facebook users do not always engage with China-related news. It is clear that users are more likely to like a post containing China's topics but are less willing to share China's stories. As I have discussed in this chapter, individuals have come gatekeepers in the social media age and have the potential to decide the importance and popularity of news topics (Boczkowski & Mitchelstein, 2013). The mixed finding presented here thus suggests that the effectiveness of China's globalizing propaganda is still in question.

It should be noted that I do not consider the global expansion of Chinese state media as a new phenomenon. In fact, Chinese state media have begun to set overseas correspondents and news bureaus to "make China's voice heard internationally" since the 1990s (Nyri, 2017, p. 20). The adoption of Western platforms like Facebook, however, offers the possibility to directly engage with the audience across the globe (Bjola & Holmes, 2015; Huang & Wang, 2020). Traditional literature on political communication often regards digital media as liberation technologies, by which dissidents can engage in politics while authoritarian actors work to control information diffusion (G. Yang, 2009). However, Study 1 shows that digital media also empower the state actors, since authoritarian regimes like China are increasingly using global social media platforms to achieve their political purposes abroad.

In addition to censorship, I argue that China has the potential to build international agenda and influence foreign audiences by globalizing propaganda. In the aftermath of the 2016 US Presidential election, many are concerned about the use of Facebook's advertising platform by Russian state actors to influence US election outcomes (Lukito et al., 2020; Woolley & Howard, 2018). Similarly, future studies might address the question of why Facebook, banned by the state from operating domestically in China, allows for its platform to be used by the same state to advance its political goals globally and openly.

One limitation of Study 1 is that I do not explore how global audiences perceive Chinese state media on Facebook. Audience engagement does not necessarily lead to the change of perceptions and attitudes. Therefore, future research should test whether different sentiments of social media news affect public perception. Another limitation is that Study 1 does not investigate how Chinese state media compete with Western media on Facebook. It is argued that these media try to establish China's discourse in the global context (Nip & Sun, 2018). Hence, it

is interesting to analyze how Chinese state media cover certain issues (e.g., South China Sea) and compete with the incumbent news organization. It is also important to clarify that this media practice is not alone on Facebook: Chinese state media are also employing YouTube and Twitter to distribute news content and attract tens of millions of followers on these platforms. At the same time, Chinese local governments (e.g., Jiangsu) and commercial media (e.g., Yicai, and Hunan TV) are also emerging on these social media platforms. Therefore, future research should devote attention to these endeavors in order to understand the strategies used by China to improve its global influence.

In sum, Study 1 reveals that Chinese state media are strategically using Western platforms to tell China's stories and promote national branding. The findings presented in this chapter suggest that state media seek to build different agendas for China and other nations, and aims to frame China's non-political issues. Moreover, social media users are less likely to share China-related news, and this may challenge the practice of international propaganda on Facebook. Yet, questions still remain as we do not know how Chinese state media cover other countries, and what factors can explain this practice. As I have stated in Chapter 1, in the field of globalizing propaganda, another important aspect of the practice is the coverage of foreign countries, since this determines how the host country portrays the guest countries. In addition to telling China's story, these news agencies also attempt to spread China's voice globally. Therefore, in the next chapter, I specifically examine the coverage of foreign countries in Chinese state media.

Chapter 3 (In)Visible Foreign Nations: Shaping International News (Study 2)

Introduction

The findings of Study 1 unveiled that Chinese state media seek to "tell stories of China" by crafting China as a favorable culture and society rather than a political entity. Nevertheless, the coverage of China is not the only way that is used by Chinese state media to globalize propaganda. In fact, these news organizations also produce and disseminate news about foreign nations on Western platforms. As I have noted in Chapter 1, a key component of globalizing propaganda is the coverage of foreign nations. This not only shows the connection between the host country (i.e., reporting country) and guest countries (i.e., reported countries), but also illuminates the way by which news media of the host country shape the image of foreign nations and international affairs (Segev, 2015). This practice could provide counter-flows of international news and potentially affect how global audiences perceive foreign nations. Then, how do Chinese state media tell stories of foreign nations?

In Study 2, I further examine the visibility and invisibility of foreign nations in Chinese state media on Western platforms. The focus of this chapter, hence, has shifted from China's stories to the structure and content of international news. In particular, if the analysis of telling China's stories in Study 1 helps understand the coverage of the host country and audience engagement, then the exploration of international news in Study 2 allows me to look at the volume of reference to foreign nations in China's globalizing propaganda, and at the same time, to explore factors shaping the newsworthiness of foreign nations in Chinese state media.

Scholars of international news and global communication have argued that not all countries are treated equally in the news (T. K. Chang, Shoemaker, & Brendlinger, 1987; Jones, Van Aelst, & Vliegenthart, 2013; D. Walter, Sheafer, Nir, & Shenhav, 2016). More specifically, researchers have found that the picture of international events and foreign nations presented in news media is unavoidably biased and distorted (Galtung & Ruge, 1965; Schramm, 1959). For example, international broadcasts highlight elite and powerful nations when covering international issues. The choice is usually related to multiple factors including economic ties between the host country and guest countries, and geographically and culturally proximity between two countries (Segev, 2015; H. D. Wu, 2000).

However, previous literature on international news often emphasizes the coverage of foreign nations in the domestic market, whilst little attention has been paid to analyze how news outlets report international news for global audiences on social media platforms. In addition, prior studies on propaganda focus predominantly on how news media cover the host country and how audiences engage with the content. Yet, they ignore the important connection between the host country and guest countries. In addition to covering its own stories, the host country could also spread the news about foreign nations. Moreover, the coverage of foreign nations could lead to public awareness and shape how people think about other countries in the international arena (Fahmy et al., 2012; Iyengar & Simon, 1993; Sheafer & Gabay, 2009). Extending these lines of research, I expect that Chinese state media produce international news coverage in a way that serves its foreign policy and affects audiences' perceptions of foreign nations.

Therefore, the purpose of Study 2 is to systematically examine how Chinese state media shape international news on Western platforms, and what country-level factors can determine the visibility of foreign nations. In this chapter, I argue that globalizing propaganda is also a strategic

response to dynamic international conditions of the host country. In other words, news media of the host country are motivated by national interests to report or not report guest countries. The analysis of the content and structure of international news coverage can inform us how the host country reports others and what factors can explain the coverage of guest countries.

Research Hypotheses and Questions

The Role of International News

International news refers to the news coverage of foreign nations and international affairs (Galtung & Ruge, 1965; Rosengren, 1974). It often indicates the stories of "others" in the news and is considered an important means for shaping people's understanding of foreign issues and the world (Nossek, 2004). International news had been explored in the 1950s and was related to the New World Information and Communication Order (NWICO) (Kayser, 1953). the research conducted by Schramm (1959) found that the nations presented in the news were not proportionally consistent with the real world, because some were more visible than others. The rise of cable news further improves the role of international news. An important finding has been the theory of CNN effect, which comes from the observation that 24/7 broadcasting networks have become a decisive actor in advancing foreign policy interests of the state (Gilboa, 2005). By offering real-time coverage of a particular event, the global broadcasting networks have effectively impacted foreign public opinion (Iyengar & Simon, 1993) and foreign policy (Livingston, 1997). For example, studies have reported that respondents who often watched CNN, CNBC and BBC had significantly less negative attitudes toward the United States,

compared to those who often watched pan-Arab regional networks like Al Jazeera and MBC (Fahmy et al., 2012; Miladi, 2006).

Based upon agenda-building theory, scholars of international news have investigated how news media cover foreign nations (Galtung & Ruge, 1965; D. Walter et al., 2016; H. D. Wu, 2000). As I have discussed in Study 1, the theory of agenda-building examines the construction of issue salience in news media, with particular emphasis on factors and processes of the salience of topics and actors (Cobb & Elder, 1971; Lang & Lang, 1991). Scholars have employed this theory to examine how news media report foreign nations and international issues for domestic audiences (Sheafer & Gabay, 2009). Scholars of global communication suggest that the flow and structure of international news lack a balance, as mainstream Western media largely shape and dominate which countries should be covered and how to report foreign nations (T. K. Chang et al., 1987; Thussu, 2018). One of the important findings is that a few powerful and developed countries, particularly the US, dominated the international news coverage, whereas developing countries are often framed in terms of negative events (Golan, 2008; D. Walter et al., 2016; Wanta et al., 2004).

In the context of international propaganda, the coverage of foreign nations is also important as it indicates how the host country portrays and frames guest countries for global audiences. Indeed, it allows news media of the host country to specifically provide favorable reporting for allied countries and meantime highlight the negative aspects of other countries (Herman & Chomsky, 2008; Sheafer & Gabay, 2009). Based upon this expectation, Chinese state media must follow the official line set by the Party-state and contribute to regime stability and legitimacy through propaganda (Stockmann & Gallagher, 2011). Recent studies have revealed that these media outlets create different stories and tones for other countries (Ji & Liu,

2017; Roberts, Stewart, & Airoldi, 2016). Thus, I expect that there are substantial differences in news coverage across countries reported by Chinese state media on Facebook.

The Determinants of International News Coverage

A central question in international news research is to understand what makes some nations more newsworthy and prominent than others (Segev, 2015; H. D. Wu, 2000). The seminal work by Galtung and Ruge (1965) introduced 12 factors to explain the selection and newsworthiness of international and foreign issues. They argued that international news is mainly driven by factors including elite nations, cultural proximity, negative news, unexpected events) (Galtung & Ruge, 1965). Additionally, Östgaard (1965) claimed that media ownership and governmental control of media also contribute to the flow of international news. Moreover, Rosengren (1974) proposed geographical proximity and the importance of events as predictors of international news flows. Further, Hester (1973) examined the determinants of international news from the perspective of international relations, suggesting that the hierarchy of nations and economic connection are key factors affecting the selection of international news.

Obviously, conventional wisdom tends to explore the coverage of foreign nations from three perspectives: national traits (i.e., context-oriented factors like the size and power of foreign nations), relatedness (i.e., economic, political, and cultural proximity), and events (e.g., wars, conflicts). In Study 2, I focus on these three groups of factors to explore how and why Chinese state media cover international news. This will help me examine how China understands other nations and reports others in the global information landscape.

First, I expect that traits of a nation can explain the structure of international news provided by Chinese state media on Western platforms. Following Wallerstein's (1974) World

System theory, scholars have claimed that the coverage of international news is usually determined by the size and power of foreign nations (T. K. Chang et al., 1987; H. D. Wu, 2000). Core countries like the US received much more news coverage than other peripheral countries (Golan, 2008; Jones et al., 2013). For instance, empirical studies have demonstrated that population is an important predictor of foreign nation visibility in news media, as this variable is related to the "hierarchy of nations" (T. K. Chang & Lee, 1992; Jones et al., 2013). Extending this line of research, I propose the following hypothesis:

H7: The level of national traits is positively associated with international news coverage

Second, prior literature suggests that relatedness is a significant predictor of the prominence of foreign nations in the news, as this concept captures the connection between the host country and guest countries (H. D. Wu, 2000). A significant amount of research has reported the positive relation between economic ties and international news coverage (Segev, 2015; D. Walter et al., 2016; H. D. Wu, 2000). For example, Ahern (1984) found that trade relations were strong predictors of covering foreign countries in the US. By examining news coverage in 38 countries, Wu (2000) reported that trade volume was a key factor predicting the amount of foreign news. Other scholars also found that trading interest and economic ties were important factors of foreign news coverage (Balmas, 2017; Dupree, 1971; Rosengren, 1974). The reason is that economic ties and trade flows indicate the importance of guest countries (Jones et al., 2013; D. Walter et al., 2016). Chinese state media are usually considered as the "mouthpiece" of the government (Stockmann, 2011), and their coverage often implies the perspective of the government. Thus, I expect that Chinese state media tend to focus on countries that have strong economic ties with China. As I have found in Study 1, Chinese state media attempt to focus on China's economic topics on Facebook, and thus they are expected to cover

foreign countries that have strong economic ties with China. Therefore, I propose the following hypotheses:

H8: The level of economic connections with China is positively associated with international news coverage

Third, while economic connections emphasize the relatedness of the host country and guest countries, another factor affecting the flow of international news is specific events that happened in guest countries. Research on news values has claimed that negative events like conflicts and wars are more likely to be reported by news outlets, particularly in developing countries (Golan, 2008; D. Walter et al., 2016; Wanta et al., 2004). Thus, it is possible that Chinese state media also focus on countries that have bad events. Thus, I propose the hypothesis:

H9: The level of negative events is positively associated with international news coverage

Measuring International News

In this section, I review previous studies in international news and media bias to develop three aspects of measuring international news coverage: the amount of news coverage, the proportion of China-related news, and the sentiment of news. First, existing literature regards the visibility of foreign nations as a key outcome of international news coverage, since this indicator shows the prominence of foreign nations in the news (Jones et al., 2013). This is also conceptualized as visibility bias, referring to the relative amount of news coverage that an issue or actor receives, which is usually measured by comparing the length of reporting or the number of stories (D'Alessio & Allen, 2000). The more news stories a country obtained in the news, the more important the country is for the host country (T. K. Chang et al., 1987; H. D. Wu, 2000).

Second, scholars also explore specific connections between the host country and guest countries, as this indicator shows how closely two countries are in international news (Galtung & Ruge, 1965). If these state media often report certain countries with China, then these countries are important partners or allies. Finally, another important outcome is the valence of foreign nations (i.e., news sentiment or tones), as this indicator illustrates how a given country is reported in the news (D. Walter et al., 2016). Media coverage can emphasize either positive aspects or negative aspects when reporting a certain issue and actor (Iyengar & Simon, 1993). Countries receiving positive coverage in the news are more likely to receive favorable attitudes from audiences (Wanta et al., 2004). Researchers have used news tones and sentiment to capture the importance of foreign countries, as allies often receive more favorable coverage (H. D. Wu, 2000). Previous studies have revealed that Chinese state media often report the positive aspects of China's topics (Roberts et al., 2016) and cover negative aspects of foreign nations (Stockmann, 2011).

Audience Engagement with International News

One limitation of previous studies on international news is the lack of audience analysis. While researchers have explored the structure and determinants of foreign nation coverage, it is not clear to what extent news audiences engage with international news, and importantly, whether country-level factors could explain the change of audience engagement. As I have discussed in Chapter 2, social media have facilitated more precise methods to measure and quantify the audience. The number of likes and 'most read', for instance, have been used to measure how many people visit a Page, what they choose to read, and share a story.

Theoretically, audience engagement is conceptualized as a social process by which people interact with others and participate in politics (Gil de Zúñiga, Jung, & Valenzuela, 2012). It is also an important approach for users to express their perspectives (Lane et al., 2019) and manage self-presentation (Kraft, et al., 2020). Moreover, scholars have analyzed the difference between newsworthiness and shareworthiness. While traditional criteria of newsworthiness indeed play a role in predicting the number of shares (Trilling et al., 2017), social media users also differ from journalists and editors in news selection and sharing (Bright, 2016). Thus, it is interesting to investigate how people engage with foreign nation coverage produced by Chinese state media on Western platforms. I propose the following question:

RQ2: Are national traits, relatedness, and negative events significantly associated with audience engagement?

Methods

Data

Study 2 draws upon Facebook data to explore my hypotheses and research questions. As I have introduced in previous Chapter 1 and Chapter 2, I first identified relevant Facebook pages operated by Chinese state media and then collected relevant data through Facebook's API. In this study, the unit of analysis is countries. Since the focus of Study 2 is international news, I only include Facebook posts that include foreign countries' news (N = 189,579).

Measures

Foreign countries. As I have introduced in Study 1, a news country dictionary was adopted to identify whether a post mentioned foreign countries. I used the name and capital of each country to determine whether a post contains the coverage of foreign countries. In total, 189,579 posts involved international news and 185 nations were identified. Table B1 in the Appendix B provides information for these countries.

The amount of news. To capture how many news stories these countries obtained, I calculated the number of posts for each country (M = 1,041, Mdn = 328 , SD = 2,366.7).

China-related news. This variable captures to what extent each country is related to China in international news coverage. As I have noted, Study 1 identified China-related news by using a dictionary-based method. Compared to the amount of China-related news, I consider the proportion of China-related news each country received as one of the indicators of international news reporting. For each country, I calculated and aggregated the proportion of China-related news (M = .35, SD = .21).

News sentiment. Based on sentiment analysis conducted in Study 1, I further calculated the average news sentiment for each country (M = .28, SD = .88).

National traits. Based on previous studies (Segev, 2015; H. D. Wu, 2000), I identified two variables to measure the level of national traits for each country: GDP (gross domestic product) and population. These two variables capture the economic power and size of foreign nations. Yearly GDP and population data are collected from the World Bank. All country-level predictors are one year ahead of the time of news coverage.

Relatedness. I used three measures to capture economic connections between China and other countries. The first two variables – product export and product import – measure bilateral

trade relations between China and foreign nations, and data are gathered from World Integrated Trade Solution (WITS). The third variable indicates countries involved in China's Belt and Road Initiative (BRI). BRI is one of China's key foreign policies and infrastructural investments, seeking to build various levels of cooperation between China and 65 countries in Asia, Europe, the Middle East, and Africa. A dummy variable was created to indicate BRI nations.

Negative events. To measure the level of negative events, I relied on the Global Peace Index (GPI) published by the Institute for Economics and Peace. This index comprises various conflict-related components like the number of external and internal wars, the death toll from conflicts, the potential for terrorist acts, and so on. It is scaled from 1 to 5; the higher the score, the more conflict the country has. An aggregated summary of these country-level variables can be found in Table B2 in the Appendix B.

Audience engagement. I adopted the number of likes and shares to measure audience engagement. I first calculated the average number of likes and shares for each country and then tested the correlation of these two items (r = .80). Next, I combined these two into an index of audience engagement (M = 654., Mdn = 306, SD = 912.1).

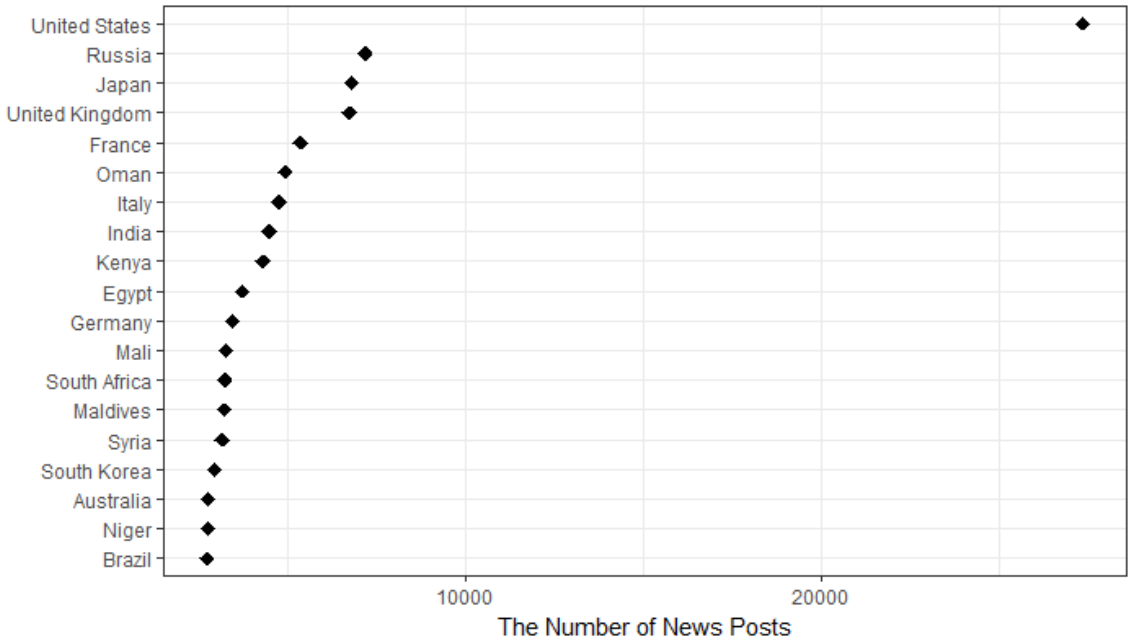
Results

Descriptive Analysis

In this section, I explore the structure of international news coverage by focusing on three measures of international news coverage. First, I calculated the number of news posts for each country and visualized the top twenty countries in Figure 3-1. It is clear that the United States is the most important nation in international news: 27,355 news stories (14.42%) were related to

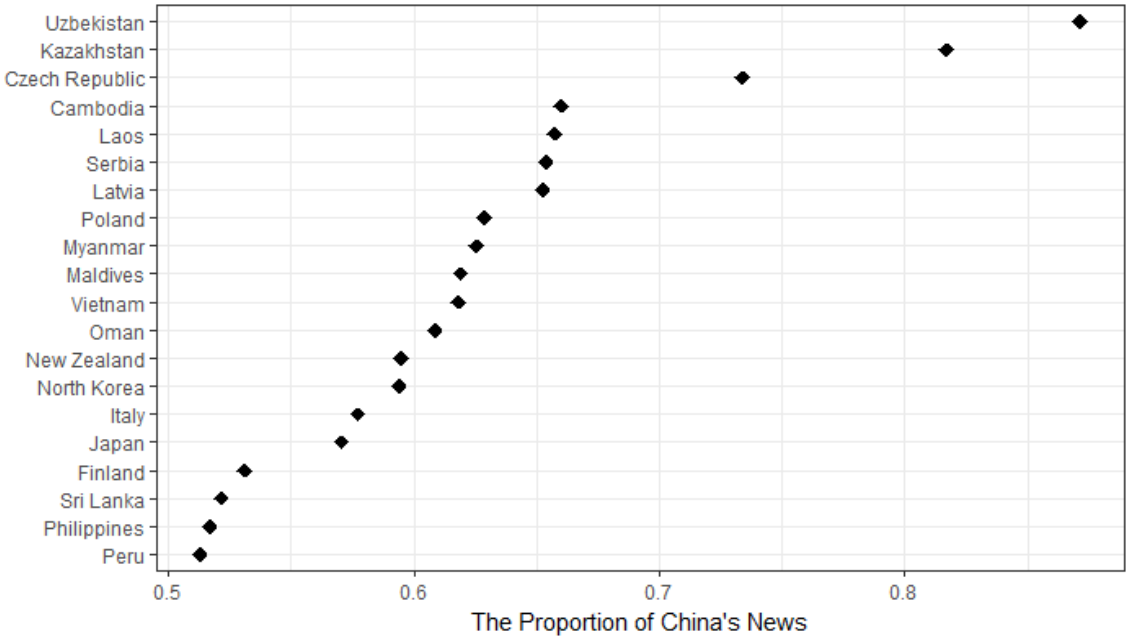
the US. In addition, Russia, Japan, UK, and France were also key countries receiving large amounts of coverage from Chinese state media. This finding is consistent with previous studies on international news showing that powerful countries are more likely to be covered (T. K. Chang et al., 1987; Segev, 2015). This is also reasonable since these countries are economic and political clout. By contrast, I find that countries like Micronesia, Suriname, Niue, and Kiribati only obtained limited news coverage. Consistent with previous research, these differences suggest that Chinese state media tend to focus on prominent foreign nations when reporting international news (Galtung & Ruge, 1965).

Figure 3-1. Most Mentioned Countries in Chinese state media



Second, I explore China-related news. In terms of reporting amount, the US is still the most crucial country (12,713 China-related news), followed by Japan, Oman, Russia, Italy, and the UK. On the other hand, countries like Grenada, Honduras, Paraguay, and Guatemala only obtain limited China-related news. In Study 2, I focus on the proportion of China-related news, and Figure 3-2 illustrates the top countries. This time, the US was not the leading actor; instead, China's neighboring countries (e.g., Japan and India), South American countries, and African countries were frequently related to China's news by state media. The difference suggests that Chinese state media frequently connect developing countries with Chinese issues in the coverage of international news.

Figure 3-2. Top Twenty Countries having the Proportion of China-related News



To explore news sentiment, I calculated the average news sentiment for each country and then plotted a global news sentiment map (Figure 3-3). The red color indicates positive sentiments, while yellow shows negative tones in the news. Obviously, Central Asia, North Europe, and North America received favorable coverage from Chinese state media, whereas countries in the Middle East, East Asia, and Southeast Asia often got negative coverage. Surprisingly, though Africa is China's key global partner, many African countries obtained negative sentiments from Chinese state media. One possible explanation is that many news stories of Africa are negative news like wars, military, and conflicts.

Figure 3-3. The News Sentiment Map

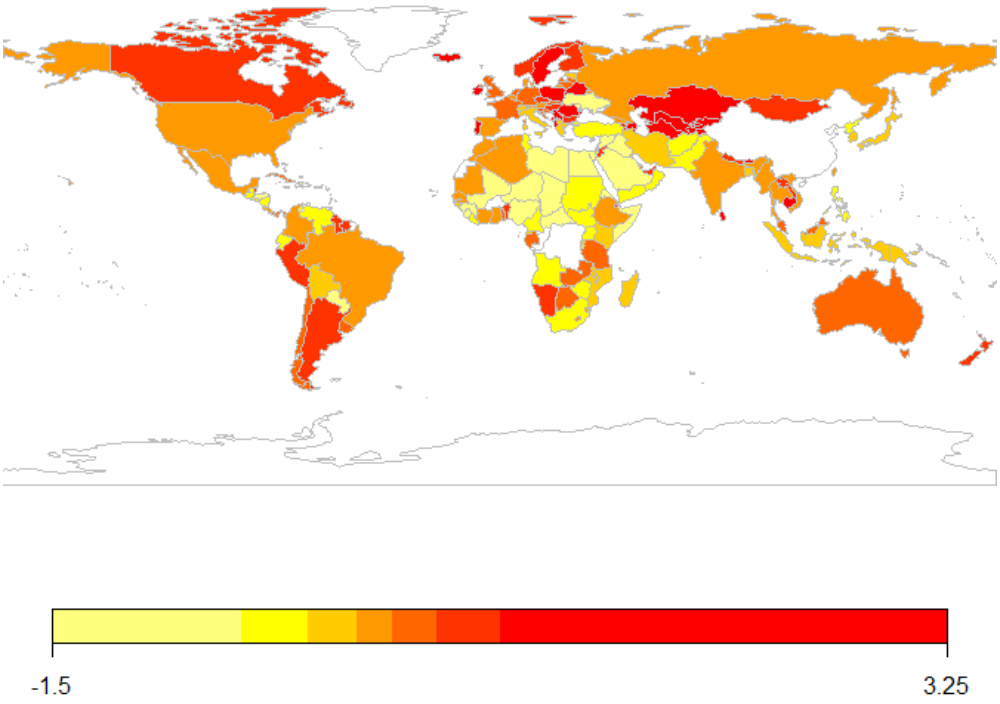
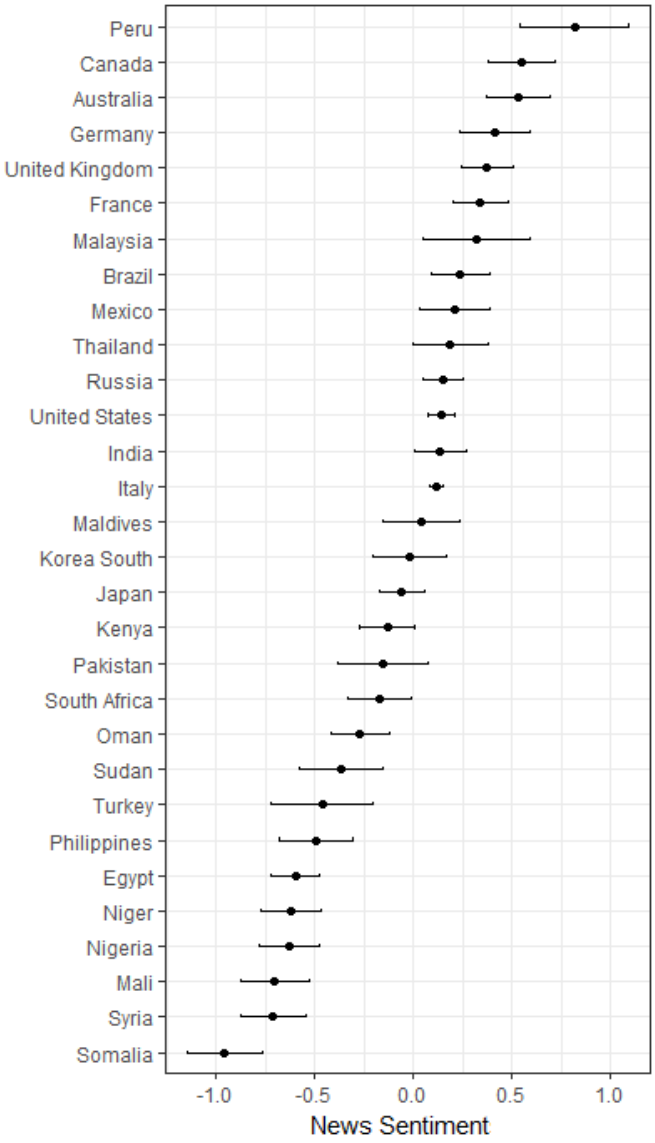


Figure 3-4. Top Twenty Countries by News Sentiment



Notably, some countries only have limited news coverage, so their news sentiment is not stable. For example, the news sentiment of Grenada is two but Grenada was only covered in nine news posts. Therefore, it is possible that a piece of news with a high sentiment score will significantly change this nation's sentiment result. To address this problem, I further aggregated the news sentiment for the top 30 countries receiving the most coverage and illustrated the results in Figure 3-4. I find that Peru, Canada, Australia, Germany, and the UK are the most favorable countries in terms of news sentiment. Interestingly, though the US and Japan received a large amount of coverage from Chinese state media, their average news sentiments were not high (M = .14 and M = -.06, respectively).

Hypothesis Testing

While the descriptive analysis offers interesting patterns for the structure of international news, it is still unclear why some foreign nations are more visible and favorable than others. In this section, I further examine country-level factors that can be used to explain the structure of international news coverage. I use linear mixed-effects regression models in order to take into account the differences between years. More specifically, I first fit a fixed intercept null model (i.e., OLS regression) containing no predictors and a random intercept null model for each criteria variable (i.e., news amount, the proportion of China-related news, news sentiment, and audience engagement). Next, I conduct analyses of variance tests of the differences between likelihood-ratio test of these two models and find that random intercept-only models are better fits for all criterion variables: news amount (χ^2 = 33.23, p < .001), China-related news (χ^2 = 27.69, p < .001), news sentiment (χ^2 = 5.44, p < .05), and audience engagement (χ^2 = 345.05, p < .001).

Table 3-1 shows the results of mixed-effects models. Full maximum likelihood estimation is used, and all variables are standardized (z-score) for model estimations. H7 expects that national traits, measured as GDP and population, are important predictors of news amount. Models 1 finds that GDP is positively related to the amount of international news a country received, $b = .46$, $p < .001$. However, the population variable does not receive significant results. Thus, H7 is partially supported.

Table 3-1. Linear Mixed-Effects Models Predicting International News and Audience Engagement

	Model 1 News amount	Model 2 China's news	Model 3 Sentiment	Model 4 Engagement
Fixed effects				
Intercept	0.04 (0.11)	-0.24 (0.11)	-0.05 (0.08)	-0.17 (0.20)
News amount		0.04 (0.04)	-0.04 (0.04)	0.09 * (0.04)
China's news	0.03 (0.03)		0.37 *** (0.03)	-0.02 (0.03)
Sentiment	-0.03 (0.03)	0.35 *** (0.03)		0.08 * (0.03)
Engagement	0.09 ** (0.03)	-0.04 (0.04)	0.12 ** (0.04)	
National traits				
Population	0.01 (0.02)	0.01 (0.03)	0.00 (0.03)	0.04 (0.02)
GDP	0.46 *** (0.08)	-0.04 (0.09)	0.24 * (0.10)	-0.08 (0.08)
Relatedness				
Export	0.48 *** (0.11)	0.06 (0.13)	-0.26 (0.14)	0.05 (0.12)
Import	-0.07 * (0.03)	0.11 ** (0.04)	-0.07 (0.04)	0.00 (0.04)
BRI	-0.04 (0.05)	0.54 *** (0.06)	0.04 (0.06)	0.25 *** (0.05)

Event				
Negativity	0.15 *** (0.03)	-0.19 *** (0.03)	-0.18 *** (0.03)	-0.19 *** (0.03)
Variance of random effects				
Level 2: τ_0^2= Var(U_{0j})	0.086	0.068	0.048	0.225
Level 1: δ^2 = Var(R_{ij})	0.380	0.546	0.588	0.421
N (Level 1 units)	809	809	809	809
N (Level 2 units)	6	6	6	6
AIC	1550.60	1846.03	1896.90	1645.67
BIC	1606.95	1902.38	1953.25	1702.02

Note. Unstandardized coefficients with standard errors in parentheses. Full maximum likelihood estimation. BRI = Belt and Road Initiative. GDP = Gross Domestic Product.

* p < .05, ** p < .01, *** p < .001.

H8 assumes that economic connection, measured as export, import, and BRI, will increase the coverage of foreign nations. Table 3-1 suggests that export has a positive association with news amount in Model 1 (b = .49, p < .001), but does not achieve significant results in Model 2 and Model 3. Moreover, while import is negatively related to the amount of international news (b = -.07, p < .05), this variable is positively associated with the proportion of China's news in Model 2 (b = .11, p < .01). Moreover, I find that BRI is also positively related to the proportion of China's news in Model 2 (b = .53, p < .001). Hence, H8 is also supported.

Furthermore, H9 expects that negative events positively influence international news coverage. I find that negative events are positively related to the amount of international news (b = .14, p < .01), but they are negatively associated with China-related news and news sentiment, b = -.18, p < .01, and b = -.21, p < .001, respectively. Thus, this provides partial support for H9.

Finally, RQ2 explores whether three types of country-level factors are related to audience engagement. Model 4 shows that BRI is positively associated with audience engagement (b = .25, p < .001), whereas negative events are negatively related to the outcome (b = -.19, p < .001). Yet, neither population nor GDP achieves significant results in Model 4. Interestingly, I find that the amount of news a country receives and news sentiment are positive predictors of news sharing, but the proportion of China-related news does not significantly relate to the criteria variable. I also separated likes and shares and ran two models. The results show the same pattern: BRI and negative events are significant predictors.

Discussion

The goal of Study 2 is to further understand China's globalizing propaganda by focusing on the coverage of international news coverage. While previous studies have analyzed the

coverage of foreign nations in domestic news markets (Segev, 2015; H. D. Wu, 2000), little attention has been paid to examine the structure of international news in the context of international propaganda. As I have noted, the theoretical framework proposed in this dissertation examines four stakeholders and three components behind China's rise in global communication. One important aspect is the coverage of foreign nations, because this could help us understand how Chinese state media cover and frame other countries.

Study 2 examines how Chinese state media produce systematically different news for foreign nations, and more importantly, what country-level factors can explain the structure of foreign nations coverage. This study highlights the relationship between the host country and guest countries, which is an important aspect of international propaganda. The results of Study 2 align with previous research on international news flows (T. K. Chang et al., 1987; Jones et al., 2013; H. D. Wu, 2000). I find that while generally developed and powerful countries (i.e., core countries) receive more news coverage, developing countries in Asia and Africa also obtain large amounts of coverage from Chinese state media, particularly in China-related news. I also reveal the differences in terms of China-related news and news sentiment. Moreover, the findings of Study 2 suggest that GDP, economic ties, and event features are important predictors of the structure of international news.

This chapter expands our understanding of globalizing propaganda from the perspective of international news, and it makes the following theoretical contributions. First of all, I find that Chinese state media do not treat all countries equally on Western platforms. Consistent with previous literature, I uncover that core countries like the US, Russia, the UK, and Japan received large amounts of news coverage, whereas small and developing countries only obtained limited attention in the news. This finding suggests that Chinese state media tend to generate different

visibilities for foreign nations. I also find that these news outlets highlight the visibility of China's commercial and political partners or opponents, since these countries are important players in the international arena. On the other hand, Chinese state media also cover China's news with its neighbors like Japan and India, aiming to portray China's role in international events and geopolitics.

Second, I find that the coverage of peripheral countries in Asia and Europe is often related to China's news. Rather than focusing on these countries' domestic issues, Study 2 illustrates that Chinese state media tend to report the connection between China and these peripheral countries in international news. Moreover, the findings indicate that China's global partners like Africa countries do not necessarily receive more favorable coverage on Facebook. Rather, Western countries are more likely to get positive news coverage. One possible reason is that the coverage of Africa countries focuses on negative news like conflicts and crises, so the scores of news sentiment scores are often lower for these countries.

More importantly, the results from this study also demonstrate that the structure of international news coverage is largely driven by three factors, namely, national traits, economic ties, and negative events. The economic power of a nation, measured as GDP, is a significant predictor of international news, indicating that Chinese state media tend to concentrate on large and powerful countries. Economic connections, which are captured as export, import, and BRI, are also important factors affecting the coverage of foreign nations. This suggests that these news media pay more attention to China's trade partners. These findings are consistent with previous studies and further show that international propaganda also considers the importance of economic factors. Furthermore, while negative events can increase the coverage of international

news, it is clear that Chinese state media are less likely to connect China with these events. This provides new evidence for the favorable tones of China's related news.

In addition, I find that some country-level factors can also be used to explain audience engagement. In particular, the findings in Table 3-1 suggest that BRI and negative events are significantly associated with engagement. The negative link between negativity and audience engagement is not surprising, as social media users are less likely to share negative news. The positive association between BRI and audience engagement shows that Facebook users are more willing to share news about BRI nations. One possible explanation is that the majority of followers of Chinese state media on Facebook are from developing countries in Asia and Africa, and thus they are more interested in BRI. Another possibility is that news about BRI contains more positive sentiment thus social media users are more likely to share it. Regardless of the explanations, the results clearly indicate that Facebook users pay more attention to specific events and national projects rather than other types of context factors like export or GDP.

While Study 1 shows that Chinese state media tend to enhance China's national image by focusing on positive events, as well as culture and society, Study 2 suggests that these state media also actively report foreign countries in certain ways. When combined with the findings from Study 1, it may be the case that the coverage of the host country is not the only way to conduct international propaganda. In addition to telling its own stories, it is clear that China also leverages Western platforms like Facebook to spread the stories of other nations. International news coverage can help Chinese state media to attract audience attention and meantime produce stories for foreign nations from China's perspective. Indeed, the findings of Study 2 suggest that international news is an important aspect of China's globalizing propaganda, which is heavily driven by economic factors.

The results presented in this chapter matter greatly for thinking about how Chinese state media globalize propaganda on social media giants. As I have discussed in Chapter 1, the global information environment is largely dominated by media organizations in Europe and North America (Winseck & Pike, 2009), and thus international news and foreign nations are predominated covered and framed by Western mainstream media like CNN and BBC (Gilboa, 2005; Livingston, 1997). Given the fact that most people lack direct experience or knowledge about foreign nations, international news plays important roles in forming and shaping people's attitudes toward and perceptions of other countries and international affairs (Nossek, 2004). International news is also widely used to serve national interest and foreign policy (Huang & Wang, 2020; Lee & Yang, 1996), so the coverage of foreign nations could indicate how the host country perceives other countries.

China's rise in global communication indicates the possibility that news outlets in a non-Western nation might challenge the dominance of Western media and produce alternative stories for global audiences on Western platforms. With the rapid growth of China in global communication, foreign countries and international events are frequently covered and framed by Chinese state media. The content and structure of international news determine what stories Facebook users can receive from these state media. More importantly, the selection of international news coverage could also reshape people's understanding of these guest countries (Iyengar & Simon, 1993; Sheafer & Gabay, 2009).

One limitation of Study 2 is that I only aggregate Facebook data to examine the structure of international news, rather than looking at specific events. This ignores the fact that the coverage of foreign nations may change due to some international affairs. It is possible, for instance, that the implementation of BRI in 2013 could significantly change how Chinese state

media cover countries involved in BRI. Thus, further research could benefit by exploring how some international events and foreign policies change the structure of international news. Another limitation is the lack of analysis of specific countries' roles in international news. For example, while the US is the most prominent nation in Chinese state media, it is still unclear how these news organizations cover US-China relations. Future research hence could examine the coverage of specific countries.

To summarize, the findings of Study 2 suggest that it is important to understand the link between the host country and guest countries by looking at the content and form of international news coverage. International news is important, not only from the perspective of journalism studies, but also for the operation of international propaganda. By showing systematic differences across foreign nations, this chapter provides support for the framework of globalizing propaganda. In addition, Study 1 and Study 2 have demonstrated the importance of the US-based platforms in China's globalizing propaganda. However, while Chinese state media actively wield giant platforms for propaganda purposes, it is not clear whether and how platforms like Facebook and Twitter could restrict China's expansion. This is an interesting and important question because, as Study 1 and Study 2 have shown, China's globalizing propaganda relies mostly on these platforms. More importantly, this question connects the host country with the fourth actor in my framework, namely, social media platforms. In the next chapter, I further analyze the regulation of China's globalizing propaganda by emphasizing Twitter's introduction of labeling state-affiliated media accounts.

Chapter 4 Not Share It Anymore: Regulating Globalizing Propaganda (Study 3)[11]

Introduction

In Study 1 and Study 2, I have examined the practice of globalizing propaganda from two aspects. The findings of Study 1 suggest that Chinese state media focus predominantly on non-political topics when covering China, and Facebook audiences actively engage with this practice. In Study 2, I further reveal that Chinese state media shape international news for economic factors. They highlight news coverage of countries that have strong economic ties with China, and meantime do not connect China with countries having fragile conditions.

The overarching goal of Study 3 is to examine whether and how Western platforms can regulate globalizing propaganda. If state-sponsored propaganda, as confirmed in Study 1 and Study 2, seek to purposefully craft national images and shape international news, then how could large platforms govern and restrict the distribution of propaganda content? More specifically, Study 3 employs a quasi-experimental design to test the effect of labeling Chinese state media on audience engagement in Twitter. This study utilizes a real-world intervention to examine the regulation of globalizing propaganda. On August 6, 2020, Twitter announced that it would add labels to "accounts that are controlled by certain official representatives of governments, state-affiliated media entities" in order to "provide additional context" (Twitter, n.d.). The label appears on the profile pages of flagged accounts and on the tweets posted and shared by these

[11] An earlier version of this chapter received the Top Student Paper Award from Political Communication Division at the 71st ICA (International Communication Association) Annual Conference.

accounts (see Figure 4-1). This practice provides a quasi-experimental opportunity to test the effect of flagging propaganda sources and to identify to what extent social media platforms can reduce the spread of international propaganda.

Figure 4-1. The Example of Source Flagging on Twitter

As noted in Study 1, sharing information on social media is a social process in which people interact with others and participate in politics (Gil de Zúñiga et al., 2012) and a key component of online expression (Lane et al., 2019) and self-presentation (Kraft et al., 2020). In fact, audience engagement is central to the problem of information warfare around the globe (Bimber & Gil de Zúñiga, 2020), since what makes the current disinformation and propaganda particularly dangerous is that this type of information spreads quickly and widely on social media platforms (Woolley & Howard, 2018). In Study 3, I examine the debunking role that flagging could play in preventing people's sharing of information from propaganda sources on social media. In doing so, this chapter contributes to the scholarship in three ways. First, I situate Study 3 in the emerging literature on flagging and the long-standing propaganda research, thereby expanding the emphasis of existing research from the content structure of international propaganda to the regulation of globalizing propaganda. Second, I provide substantive evidence concerning how social media platforms could restrict audience engagement in the natural setting. Third, the quasi-experimental design and interrupted time series analysis used in this chapter offer new directions for studying the regulation of international propaganda over time.

Research Hypotheses and Questions

Flagging as a Means of Platform Regulation

The widespread growth of disinformation and propaganda on social media has raised growing concerns in recent years. Many worry that such information warfare and disorder can manipulate public opinion and disrupt democratic processes (Bimber & Gil de Zúñiga, 2020; M. L. Miller & Vaccari, 2020). In response, various solutions have been proposed by journalists,

tech firms, and policymakers. While fact-checking organizations have mushroomed to verify politicians' statements and news coverage (Amazeen, 2020), social media platforms have also taken actions to regulate content and users. A common approach is to flag potentially false, deceiving, or manipulative messages in the hope that these labels and warnings would be able to deter users from believing and sharing such content (Bode & Vraga, 2015; Garrett & Poulsen, 2019; Mena, 2019; Weeks, 2015). For instance, Facebook has implemented the "Related Articles" feature in order to offer additional information to dubious posts. Twitter and YouTube have also added labels to content that might be disputed or misleading.

However, empirical studies have presented inconsistent findings regarding the effect of flagging and fact-checking (Nieminen & Rapeli, 2019; N. Walter, Cohen, Holbert, & Morag, 2020). For example, Amazeen et al. (2018) reported that attaching a truth scale to a message could correct false beliefs. On the other hand, other studies suggest that flagging might have limited or backfire effects (Nyhan & Reifler, 2010). Garrett and Poulsen (2019) found that fact-checkers and peer-generated warning flags were not always successful in reducing belief in and sharing intention of untruthful messages.

I argue that the discrepancies may be partly due to research designs and gaps. First, most existing studies rely on online experiments so participants are exposed to mock news with flagged messages. As such, the results usually lack external validity, making it difficult to generate conclusive findings. Second, previous studies mainly examine the effect of flagging on perceptions and attitudes, but changes in perceptions and attitudes are not always manifested in behaviors. Recent studies exploring the flagging effect on sharing behaviors still rely on self-reported data (Chung & Kim, 2020; Mena, 2019). Finally, prior studies have focused primarily on the flagging of content rather than sources. Yet, the well-established persuasion literature has

revealed that information sources play a crucial role in information processing and decision-making (Hovland, Janis, & Kelley, 1953; Sundar, 2008). It is unclear whether attaching labels to social media accounts could affect users, since these labels signal that the information sources are questionable in terms of motive, impartiality, and credibility (Nassetta & Gross, 2020).

Based on existing theories and evidence, I propose two competing expectations for the regulation of international propaganda. First, flagging can be effective in deterring people from engagement, because such a measure debunks the propaganda feature of Chinese state media. Alternatively, people could resist flagging since labeling state-affiliated media might conflict with their existing beliefs and knowledge.

Source Flagging and the Decline of Audience Engagement

There are three reasons to expect that source flagging could reduce audience engagement. First, flagging can be considered as one type of heuristic cues that help people process information and make judgments. Ample research has shown that people rely largely on heuristic cues for information processing (Chaiken, 1980; Sundar, 2008). Cues affect people's evaluation of the attributes of a message (e.g., credibility) and the traits of a communicator (e.g., liking) (Chia & Cenite, 2012). Importantly, they are effective tools of persuasion, particularly for low-involvement individuals (Chaiken, 1980) and in the online environment (Sundar, 2008). Thus, source flagging could be effective in reducing audience engagement because they reveal the affiliations of media accounts and challenge the credibility or neutrality of these sources. Recent research shows that people are less likely to share news provided by fake sources (Bauer & von Hohenberg, 2020) and to endorse rumors when fact-checking is presented (J. Shin, Jian, Driscoll, & Bar, 2017).

Second, source flagging could also be effective due to the third-person effects. That is, people tend to perceive media messages to have a stronger effect on others than on themselves. Recent research has found that increased third-person perception would diminish people's intentions to share fake news (Chung & Kim, 2020). This mechanism could apply to foreign propaganda as well, since the goal of propaganda is to persuade people and direct their behavior (Jowett & O'Donnell, 2014; Lasswell, 1938). In other words, users might not engage with flagged accounts, as they think that other users are more susceptible to propaganda sources than themselves.

Third, people share news to express themselves and manage self-presentation (Kraft et al., 2020; Lane et al., 2019). Therefore, users would naturally avoid sharing information from flagged sources since this could damage their online reputation. This may be particularly salient given that propaganda from authoritarian countries strongly connotes manipulation and deception (Elswah & Howard, 2020; Nassetta & Gross, 2020). Taken together, I propose the following hypothesis :

H10: The presence of source flagging will decrease audience engagement on social media.

Source Flagging and the Increase of Audience Engagement

Alternatively, source flagging could increase audience engagement. One explanation is motivated resistance (Nyhan, Porter, Reifler, & Wood, 2020). According to this explanation, people often have preexisting beliefs, ideologies, and knowledge. Thus, exposure to flagging messages might have undesired effects if corrections are counter-attitudinal, as people tend to avoid uncongenial fact-checkers (Hameleers & van der Meer, 2020). For example, Nyhan and

Reifler (2010) found that fact-checking failed to change attitudes among the most committed participants but increased misperceptions instead.

Second, the continued influence effect and familiarity effect could mitigate flagging efforts (Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012; Thorson, 2016). Previous research suggests that fact- flagging could make people more likely to rely on false content for inferential reasoning, as these messages are more familiar and accessible (Lewandowsky et al., 2012). Consequently, exposure to flagging can lead to corrections backfiring and strengthen individuals' existing misperceptions.

In the context of the current study, those who frequently share information from Chinese state media might already know the affiliations of these sources or have favorable attitudes toward China. As such, they might not be deterred by the flagging anyhow. It is also likely that they are motivated to share content from these flagged sources deliberately, in order to declare and defend their beliefs and ideologies. Thus, I propose:

H11: The presence of source flagging will increase audience engagement on social media.

The Effect of Source Flagging over Time

Existing studies rely largely on one-time stimuli to measure the effect of flagging (Chung & Kim, 2020; Garrett & Poulsen, 2019). Nevertheless, in reality people are repeatedly exposed to flagging labels on social media. While flagging might have an immediate effect, changes in people's behaviors could also happen gradually with repeated exposure, which cannot be captured by single-session experiments. Furthermore, the long-term effect of flagging on user behavior remains unknown. Flagging could produce lasting effects that permanently discourage

audience engagement. Alternatively, it could generate short-term effects that would diminish over time. These are important questions since they explore how effective flagging measures could be, yet no study so far has provided empirical answers. I thus ask:

RQ3: Does source flagging have an immediate effect or delayed effect on audience engagement?

RQ4: Does source flagging have a long-term effect on audience engagement?

The Role of Content Features

As I have discussed in Study 1, previous research holds that news selection and audience engagement are also a function of content features like sentiments and topics (Trilling et al., 2017). For example, previous research finds that controversial news (Boczkowski & Mitchelstein, 2012) and positive content (Kraft et al., 2020) are more likely to be shared by people. I also find that non-political topics are more liked to be shared by Facebook audiences. In Study 3, I consider two content factors: China-related news and political news.

First, Twitter's flagging might have differential effects between China- and non-China-related news. Recent research has found that China-related content received more likes and reposts on Twitter and Facebook (Huang & Wang, 2020; Liang, 2019). Study 1 also confirms this finding. With the presence of source flagging, I expect users to be more aware that China-related messages are tailored for purposes of conveying certain ideologies and persuading audiences. Thus, users are less likely to share China-related news if source flagging could limit audience engagement, because such labels debunk the operations of propaganda. On the other hand, prior research finds that people could hold on to existing beliefs when facing flagging (Lewandowsky et al., 2012). The introduction of propaganda labels could further motivate users,

particularly those who have already known the affiliations of labeled sources and found China favorable, to share China-related news in order to promote the image and voice of China. Hence, I hypothesize:

> H12: The effects of source flagging on audience engagement will be stronger for China-related news than non-China-related news.

Similar effects could be observed in political news as well. While Study 1 finds that political content is not the most prominent topic, politics is still the main arena where state propaganda endeavors operate and compete (Creemers, 2017; Jowett & O'Donnell, 2014; Lasswell, 1938). It is likely that users are less willing to share political news produced by flagged sources, as flagging corrects their perceptions of information sources (Nassetta & Gross, 2020). I could also expect people who are familiar with these accounts to share political news more frequently, as they intend to defend their perspectives or restate their pre-existing beliefs and attitudes. I thus hypothesize:

> H13: The effects of source flagging on audience engagement will be stronger for political news than non-political news.

Methods

Data

To test the flagging effect, I first compiled a list of Twitter accounts that are operated by Chinese state media organizations and then selected those are: 1) verified by Twitter, and 2) actively producing English news. This yielded 30 flagged accounts[12]: 25 are operated by state-

[12] This is not an exclusive list of Chinese state media on Twitter. Media accounts that publish news in other languages or do not actively produce content are not included in this study: @CRIjpn, @cgtnrussian,

owned media and five are owned by market-based media (@caixin, @ShanghaiEye, @SixthTone, @thepapercn, and @yicaichina)[13]. Table 4-1 provides descriptive statistics for these media accounts. Similar to the media agencies used in Study 1 and Study 2, Chinese state media began to use Twitter for globalizing propaganda since 2009, and many flagged accounts were created during 2009 and 2012. It is also worth noting that earlier media accounts were usually international broadcasting like CCTV (@CCTV) or national newspapers like People's Daily (@PDChina) and China Daily (@ChinaDaily), recently created accounts are more diverse. For instance, @Chinacultureorg is maintained by the Ministry of Culture, aiming to spread China's history and culture, @ChinaScience is owned by the CCP for the purpose of disseminating news about science and technology, and @XinhuaTravel focuses on information about culture and travel.

@cgtnenespanol, @cgtnarabic, @PuebloEnLnea, @Xhespanol, @XHJapanese, @XHIndonesia, @CRIespanol, @Xhespanol, @VoiceofPD, @cctvenespanol, @ChinaDailyEU, @ChinaDailyUSA, @rus_renminwang, @PeopleArabic, @DiarioPovo.

[13] Chinese state media system has experienced market liberalization since the1990s. While market-based media do not receive subsidies from governments, they need to follow official regulations and censorship.

Table 4-1. Descriptive Statistics of Flagged Media Accounts

Media accounts	W1	W2	W3	Account created	Affiliations
@BeijingReview	224	260	259	Jun-09	CIPG
@caixin	327	441	326	Jan-10	Commercial media
@CCTV	210	202	215	Jul-09	State Council
@cgtnafrica	813	807	796	Jun-12	State Council
@cgtnamerica	919	904	874	Jun-12	State Council
@CGTNEurope	439	375	314	Dec-16	State Council
@CGTNOfficial	2,724	2,708	2,578	Jan-13	State Council
@China__Focus	99	143	107	Oct-17	CIPG
@Chinacultureorg	102	88	67	Nov-15	Ministry of Culture
@ChinaDaily	1,700	1,690	1,633	Nov-09	State Council
@ChinaPlusNews	236	191	244	Apr-09	State Council
@ChinaScience	132	134	126	Aug-19	The CCP
@Echinanews	681	675	667	Jul-11	The CCP
@GlobalTimesBiz	420	359	294	Feb-16	People's Daily
@globaltimesnews	2,604	2,337	2,342	Jun-09	People's Daily
@Guangming_Daily	186	195	192	Jun-12	The CCP
@ipandacom	154	140	150	Feb-13	CCTV
@PDChina	751	725	732	May-11	The CCP
@PDChinaBusiness	131	126	130	Aug-19	The CCP
@PDChinaHK	64	45	32	Jun-20	The CCP

@PDChinaLife	144	139	130	Aug-19	The CCP
@PDChinaSports	117	93	111	Aug-19	The CCP
@ShanghaiEye	384	381	383	Oct-15	Commercial media
@SixthTone	165	155	162	Feb-16	Commercial media
@thepapercn	308	372	338	Aug-19	Commercial media
@thouse_opinions	232	309	246	Jul-19	Commercial media
@XHNews	1,758	1,666	1,722	Feb-12	State Council
@XHscitech	100	75	85	Jun-16	State Council
@XinhuaTravel	58	57	60	Feb-19	State Council
@yicaichina	533	589	715	Mar-16	Commercial media
Total	16,715	16,381	16,030	–	–

Note. Columns W 1 – 3 show the total number of tweets created by each account in each period. CIPG = China International Publishing Group, CCTV = China Central Television, CCP = Chinese Communist Party.

Next, I relied on Twitter's API to collect data from these accounts. I gathered data in a consecutive 60-day period: 20 days before Twitter introduced flagging and the next 40 days. I decided to do so because time series data are often influenced by historical and social contexts, thus collecting data over a long time period could introduce time-varying confounders (Box-Steffensmeier et al., 2014). In contrast, using a short period might not have enough observations for model estimation. Based on the consideration, I considered 20 days prior to the event as the pre-intervention period (W1 July 17 – August 5, 2020) and 20 days after the event as the post-intervention period (W2 August 6 – August 25). I also included additional 20 days to estimate the long-term effect (W3 August 26 – September 14). This offered adequate observations and meantime limited possible impacts of time-varying confounders.

Moreover, I actively monitored news during the period and found no significant events regarding China and Chinese media, which largely excluded the possibility that the fluctuations in content sharing might be due to breaking news or major issues relating to China. Overall, the dataset consisted of a total of 49,126 tweets: 16,715 in W1, 16,381 in W2, and 16,030 in W3 (see Table 4-1). I also examined whether the numbers of tweets are consistent across these three periods. I adopted a non-parametric statistical hypothesis test. Results of Wilcoxon Signed-Rank Tests show that there are no significant differences in terms of the number of tweets between W1 and W2 ($V = 130$, $p = .37$), W2 and W3 ($V = 120$, $p = .60$), and W1 and W3 ($V = 119$, $p = .63$).

Measures

Audience engagement. To capture sharing behavior, I focused on the number of likes and retweets of each tweet. These two metrics are often used to measure the popularity of social

media posts (Kwak, Lee, Park, & Moon, 2010). On Twitter, both likes and retweets indicate audience engagement since users can see tweets liked or retweeted by friends on their timelines. I combined these two into an index of daily audience engagement (r = .71, M = 77.82, Mdn = 8.14, SD = 281.72). Given that the measure was highly skewed, I conducted a logarithmic transformation of the index (M = 2.51, SD = 1.66).

Time variables. To estimate the flagging effect, I created three time-related variables (Y. Shin, 2017; Wagner, Soumerai, Zhang, & Ross-Degnan, 2002). First, *T* represents a consecutive variable indicating time in days from the beginning of the observation (1 = *July 17*, 2 = *July 18*, 3 = *July 19*…). The second variable *I* is a binary variable indicating the presence of flagging (0 = *pre-intervention*, 1 = *post-intervention*). It estimates whether flagging *immediately* influences the *level* of audience engagement. Finally, another time variable T_2 is zero for pre-intervention observations and begins consecutively counting post-intervention observations (1 = *August 6*, 2 = *August 7*...). This variable estimates whether flagging *gradually* affects the *trend* of audience engagement.

Content features. I performed dictionary-based methods to construct content variables. This approach uses the frequency of keywords to identify concepts and classes in texts (Young & Soroka, 2012). For China-related tweets, I compiled a list of keywords relating to China (e.g., China, Chinese), Chinese provinces and cities (e.g., Shanghai, Beijing), Chinese politicians (e.g., Xi Jinping), Chinese firms (e.g., Alibaba, Tencent), and Chinese celebrities. I then applied this dictionary to classify tweets related to China (0 = *non-China*, 1 = *China*). I further aggregated the data to calculate daily proportions of China-related news (M = .71, SD = .24). Following previous research (Kraft et al., 2020), I created a dictionary to identify political content and then calculated daily proportions of political news (M = .08, SD = .11).

Control variables. I controlled for three content variables: news sentiment, COVID-19 news, and the number of tweets. It has been found that people are less inspired to share news containing negative sentiment (Kraft et al., 2020) or pandemic news (Sharma, Yadav, Yadav, & Ferdinand, 2017). For news sentiment, I employed Lexicoder Sentiment Dictionary developed by Young and Soroka (2012). This dictionary contains 3,430 positive sentiment words and 5,718 negative sentiment words, allowing researchers to analyze the sentiment of textual data. I used R package "quanteda" to get a sentiment score for each tweet and then calculated daily news sentiment (M = .25, SD = .68). Next, I created a dictionary relating to COVID-19 (e.g., COVID-19, coronavirus) and applied it to calculate the daily proportions of pandemic news (M = .19, SD = .16). I also counted the number of tweets posted per account every day (M = 29.88, SD = 36.27). Table C1 in the Appendix C provides detailed summaries about these variables.

Account-level variable. I include one account-level factor in the analysis: the number of followers of each account (M = 1,268,312, Mdn = 236,000). This variable measures the popularity of media accounts and is often positively related to audience engagement. I conducted a logarithmic transformation of this variable (M = 12.37, SD = 2.09).

Analysis

I use time series analysis to test hypotheses and explore research questions. The unit of analysis is daily-aggregated observations[14]. Compared with cross-sectional designs, time series techniques enable researchers to examine temporal dynamics and social processes over time (Box-Steffensmeier et al., 2014). In Study 3, a simple comparison of the before-and-after mean

[14] The use of weeks and months as time intervals is common in time series analysis, but I will have limited observations if I choose weekly aggregated data. Thus, I use daily interval in this study.

values would be insufficient, since time series data may have trends over time. Thus, I adopt interrupted time series (ITS) designs to examine the flagging effect.

In a typical ITS design, data are collected at multiple instances before and after the introduction of an intervention (D. T. Campbell & Ross, 1968). The intervention, or interruption, could be an event or public policy. In the current case, the intervention is Twitter's practice of labeling state-affiliated media starting on August 6. The pre-intervention observations are used as the baseline to estimate counterfactual observations for the post-intervention (D. T. Campbell & Ross, 1968). Therefore, ITS can test whether the outcome observed in the post-intervention period is significantly different from that observed before the intervention, which allows us to infer that the observed change could be due to the intervention (Ramsay, Matowe, Grilli, Grimshaw, & Thomas, 2003). Thus, it is more informative than traditional before-after designs. Another advantage is that ITS accounts for potential biases in time series data, including autocorrelation, seasonality, secular trends, and random fluctuations (Wagner et al., 2002). ITS is hence considered the strongest quasi-experimental design, allowing researchers to test causal inferences when randomized trials are impractical (Ramsay et al., 2003).

There are two intervention effects in ITS: the change in the *level* and that in the *trend* (Y. Shin, 2017; Wagner et al., 2002). To test the level change, I rely on the dichotomous variable *I*. This allows us to compare the values of the outcome variable at which the estimated level of the pre-intervention series and that of the post-intervention series cross the intervention. This variable also helps estimate whether the intervention has an immediate effect (Ramsay et al., 2003; Wagner et al., 2002). A significantly negative result would suggest a sudden drop in the outcome after the intervention. To explore the trend change, I rely on the variable T_2 to compare the estimated slopes of the pre- and post-intervention periods (Y. Shin, 2017). T_2 also tests

whether the intervention has delayed effect. A significantly negative result would mean a gradual decline in the outcome value (Ramsay et al., 2003).

Results

Time Series Diagnostics

The first step in time series analysis is to understand the structure of data (Y. Shin, 2017). Time series data often involve three components: seasonality, trend, and white noise (Box-Steffensmeier et al., 2014). Since I am mainly interested in the change of audience engagement, I first estimate and deseasonalize the outcome variable. Seasonality refers to regular fluctuations that consistently occur over time, it should be estimated and removed from the data (Y. Shin, 2017). To do so, I examine the PACF (partial autocorrelation function) of audience engagement for each media account. The results suggest that this variable does not have seasonality, meaning that audience engagement does not consistently repeat at the same frequency over time (Figure C1 in the Appendix C).

I also estimate the autocorrelation of the outcome variable, because time series variables often correlate with themselves across time (Box-Steffensmeier et al., 2014). To test the first-order autocorrelation, I conduct Ljung-Box test and Durbin-Watson test (Table C2 in the Appendix C). I also employ ACF (autocorrelation function) to identify high-order autocorrelation (Figure C2 in the Appendix C). The results show that, while some media accounts have first-order autocorrelation, most of them do not show high-order autocorrelation. This means that audience engagement does not correlate with itself over time.

Hypothesis Testing

I use mixed-effects models to take into account the differences between accounts. I start with model comparisons to determine whether there are variations in audience engagement across these accounts. Similar to the process used in Study 2, I fit a fixed intercept null model (i.e., OLS regression) containing no predictors and a random intercept null model. Analyses of variance tests of the differences between likelihood-ratio test of these two models show that a random intercept-only model is a better fit for the data, $\chi^2 = 2139.4$, $p < .001$. The random intercept-only model suggests that the majority of the variance in audience engagement is attributed to account-level differences, ICC (intraclass correlation coefficient) = .88.

H10 predicts that flagging will reduce engagement, whereas H11 expects that flagging will increase news sharing. Table 4-2 shows the results of mixed-effects models. Full maximum likelihood estimation is used. A likelihood-ratio test comparing the random intercept-only model with Model 1 reveals a significant difference, $\chi^2 = 47.76$, $p < .01$[15]. Model 1 identifies a significantly negative effect of flagging on the level of audience engagement, $b = -.17$, $p < .01$. Meanwhile, I do not find significant increases in the level of and trend of audience engagement. Thus, H10 is supported whereas H11 is rejected. The predictors explain approximately 22% of the variance in engagement, whilst the remaining variance exists at the account-level (ICC = .78).

[15] I also run a mixed-effects model only using three time-related variables. The result of likelihood-ratio test suggests that Model 1 is a better fit for the data, $\chi 2 = 17.64$, $p < .01$. The time-variable-only model also reveals a significant result for the level, $b = -.16$, $p < .05$.

Table 4-2. Linear Mixed-Effects Models Predicting Audience Engagement

	Model 1	Model 2	Model 3	Model 4
Fixed effects				
Intercept	-3.95 ** (1.16)	-4.01 ** (1.17)	-3.96 ** (1.16)	-4.02 ** (1.16)
Time (*T*)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Level change (*I*)	-0.17 ** (0.07)	-0.03 (0.16)	-0.25 ** (0.08)	-0.18 (0.18)
Trend change (T_2)	0.00 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.01 (0.02)
Sentiment	0.04 (0.04)	0.04 (0.04)	0.04 (0.04)	0.04 (0.04)
Daily news	-0.00 * (0.00)	-0.00 * (0.00)	-0.00 * (0.00)	-0.00 * (0.00)
China's news	0.07 (0.13)	0.15 (0.14)	0.07 (0.13)	0.14 (0.14)
Political news	-0.27 (0.22)	-0.27 (0.22)	-0.14 (0.29)	-0.10 (0.29)
COVID-19 news	-0.42 ** (0.14)	-0.40 ** (0.14)	-0.43 ** (0.14)	-0.41 ** (0.14)
Followers	0.54 *** (0.09)	0.54 *** (0.09)	0.54 *** (0.09)	0.54 *** (0.09)
Level × China news		-0.19 (0.20)		-0.09 (0.20)
Trend × China news		0.01 (0.02)		-0.01 (0.02)
Level × Political news			0.76 (0.50)	0.72 (0.52)

Trend × Political news			-0.09 * (0.04)	-0.10 * (0.04)
Variance of random effects				
Level 2: τ_0^2= Var(U_{0j})	1.132	1.134	1.134	1.333
Level 1: δ^2 = Var(R_{ij})	0.311	0.310	0.309	0.308
N (Level 1 units)	1,097	1,097	1,097	1,097
N (Level 2 units)	30	30	30	30
AIC	2001.88	2004.55	1999.27	2001.51
BIC	2061.89	2074.56	2069.28	2081.52

Note. Unstandardized coefficients with standard errors in parentheses. Full maximum likelihood estimation. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion. Likelihood-ratio tests comparing Model 1 with Model 2/Model 4 do not obtain significant differences, whereas the difference between Model 1 and Model 3 is significant, $\chi^2 = 6.61$, $p < .05$.

* $p < .05$, ** $p < .01$, *** $p < .001$.

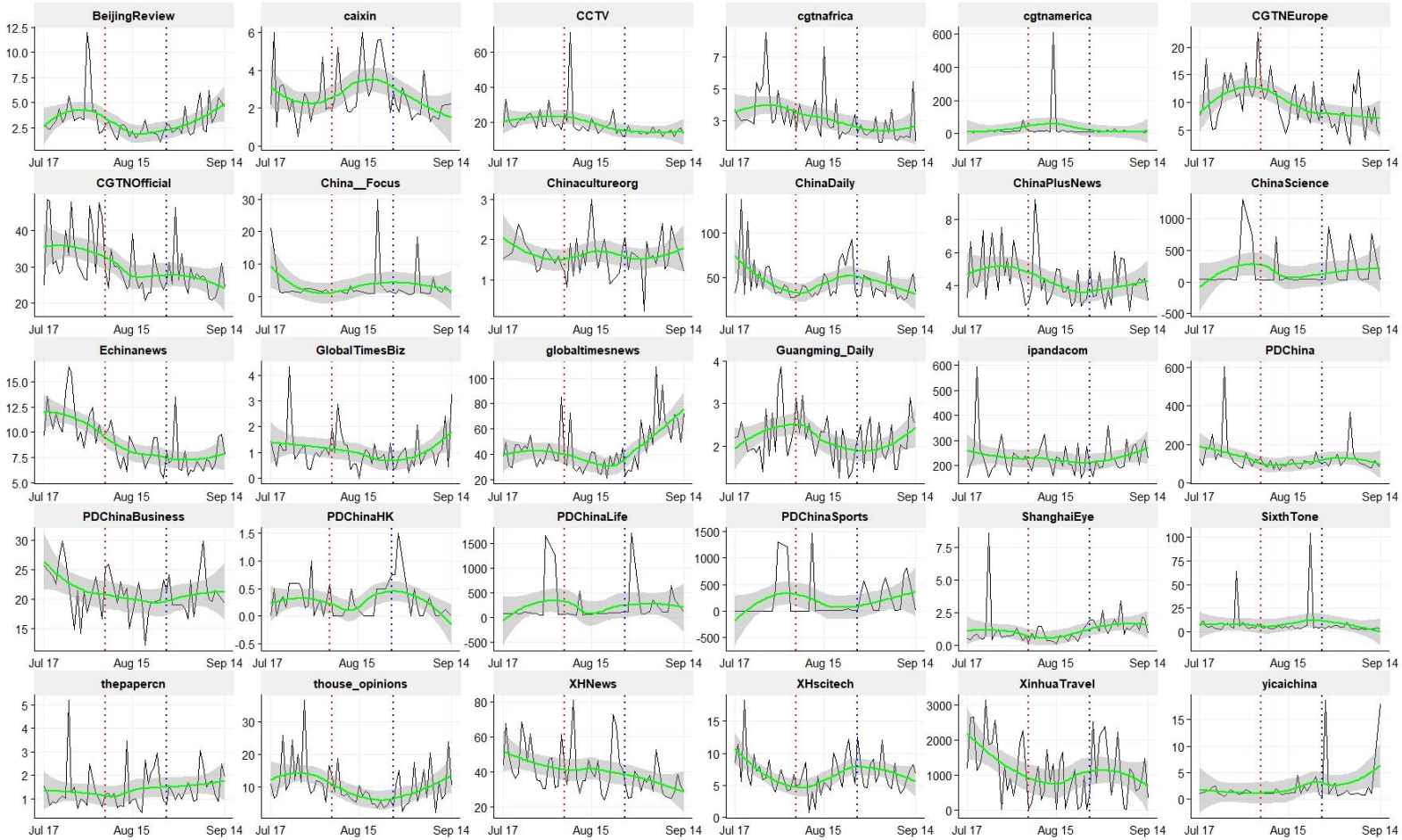
H12 expects that the effect of source flagging on audience engagement will be stronger for China-related news instead of non-China-related news, and H13 proposes that the effect will be stronger for political news than non-political content. To test these two hypotheses, I run additional models including interaction terms. Models 2 shows that there are no interaction effects between China-related news and flagging. Thus, H12 is rejected. Moreover, Model 3 reveals a negative interaction effect between political news and trend change, $b = -.09$, $p < .05$. This means that the sharing of political news gradually declined after the intervention. H13 is hence supported.

Moreover, RQ3 explores whether source flagging has an immediate effect or delayed effect on audience engagement. Table 4-2 has revealed significant results for the level (variable *I*), meaning that flagging immediately decreases engagement. Further, I do not find significant difference in the trend (variable T_2), suggesting that news sharing does not gradually decrease after the intervention. At the same time, I find that the sharing of political news gradually diminishes after the intervention, so source flagging has a delayed effect on reducing the diffusion of political content. This offers mixed findings for RQ3, indicating that source flagging effect is overall immediate, but when it comes to political news the effect might be delayed.

RQ4 addresses whether flagging has a long-term effect on audience engagement. I combine W2 and W3 data as post-intervention observations and run additional models. The results suggest that flagging significantly reduces the level of audience engagement, $b = -.18$, $p < .01$. The interaction between political news and trend change is also significant, $b = -.03$, $p < .05$. To better understand the effects of source flagging over time, I visualize the change of engagement in Figure 4-2. Evidently, the reduction of news sharing is not uniform across these accounts. Specifically, I find that 24 media outlets experienced decreases in engagement in W2,

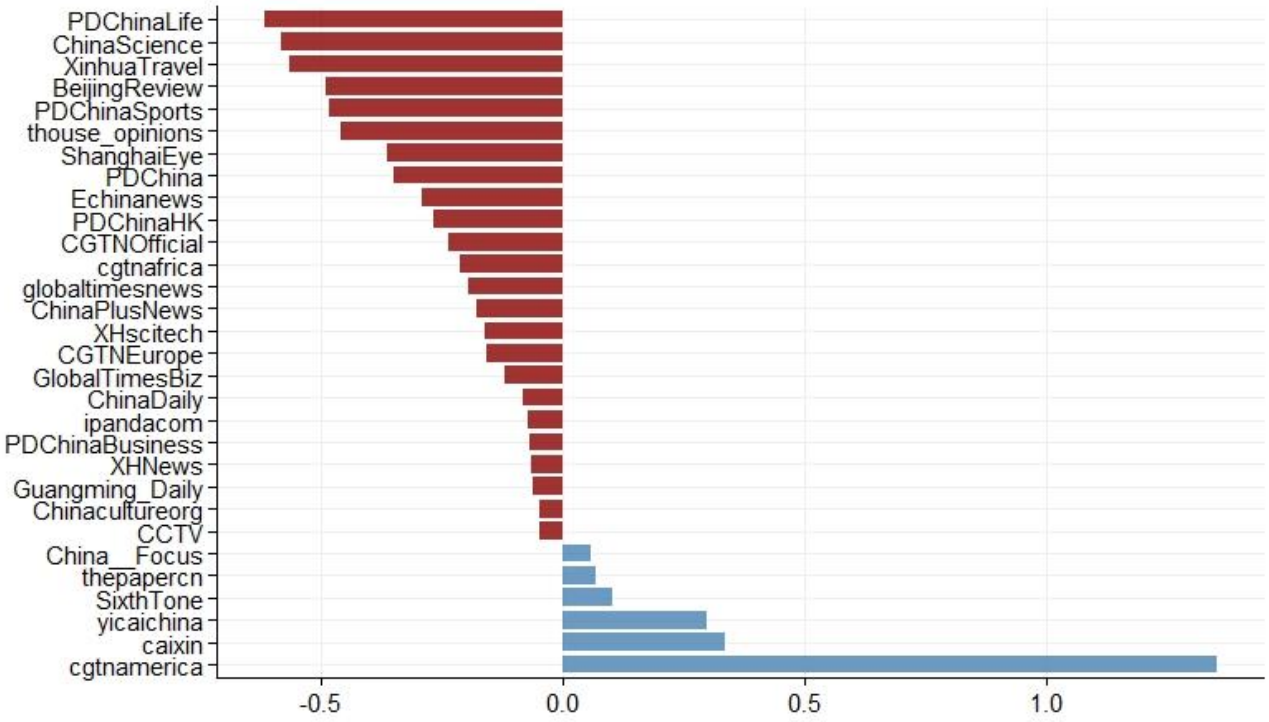
ranging from 4.6 to 61.56 percent (also see Figure 4-3). For instance, @CGTNOfficial (W1 *M* = 35.89, *Mdn* = 32.47; W2 *M* = 27.42, *Mdn* = 26.43), @PDChina (W1 *M* = 155.57, *Mdn* = 122.61; W2 *M* = 101.52, *Mdn* = 98.65), and @XinhuaTravel (W1 *M* = 1,582.38, *Mdn* = 1,534; W2 *M* = 689.99, *Mdn* = 663) lost around 23 to 56 percent of engagement after the intervention.

Figure 4-2. The Change of Audience Engagement over Time



Note. The Y-axis is the value of daily news sharing for each account. The scales on the Y-axis are different. The green curve line is the smooth line (locally estimated scatterplot smoothing) and the grey areas indicate 95% confidence levels. The red dotted line shows the intervention (August 6), whereas the blue dotted line indicates the end of W2 (August 25).

Figure 4-3. The Change of Audience Engagement



Notes. The bar chart shows the proportion change of news sharing in W2 compared with W1, calculated by subtracting the difference of daily values between W1 and W2 and divided by W1 values. Red bars show reductions in audience engagement, whereas blue bars indicate increases.

Interestingly, I find that six accounts received more sharing after the intervention (@caixin, @cgtnamerica, @China__Focus, @thepapercn, @SixthTone, and @yicaichina). While @cgtnamerica and @China_Focus are state-owned media, other four are operated by commercial media. For @cgtnamerica, @China_Focus, and @SixthTone, the increase is primarily driven by peaks in W2. I further remove these extreme values and find that their audience engagement also declined. For other three accounts, the increase is partially due to the fact that they received limited sharing (less than ten per day), so some popular tweets posted in W2 may boost news sharing.

Robustness Tests

I conduct additional tests to address the robustness of the conclusions when considering different specifications and alternative explanations. I begin with the consideration of time periods. I estimate the flagging effect using three other periods: seven days before and after the intervention, ten days, and fifteen days. I find the same results: source flagging significantly reduces the level of audience engagement (Table C3 in the Appendix C).

Second, I consider the effect for influential media outlets, as some accounts do not receive substantial audience engagement. To do so, I focus on accounts that receive at least twenty audience engagement per day in either W1 or W2. This yielded thirteen media accounts[16]. Consistent with my expectation, source flagging significantly reduces the level of engagement in short term, $b = -.29$, $p < .05$, and long term, $b = -.29$, $p < .05$ (Table C4 in the Appendix C).

[16] These accounts include: @XinhuaTrave, @PDChinaLif, @ipandacom, @PDChinaSports, @ChinaScience, @PDChina, @ChinaDaily, @XHNews, @globaltimesnews, @CGTNOfficial, @PDChinaBusiness, @CCTV, @cgtnamerica.

Third, I separate the number of likes and retweets. The results suggest that the presence of flagging has a significant effect on the level of liking and that of retweeting, $b = -.19$, $p < .01$ and $b = -.14$, $p < .05$, respectively. Source flagging also has a long-term impact on decreasing both liking and retweeting (Table C5 in the Appendix C).

Fourth, I address plausible counterfactual conditions by testing the flagging effect on non-equivalent outcomes. That is, I explore variables that are not expected to respond to the intervention. I consider four non-equivalent variables: news sentiment, the number of tweets, China-related news, and political news. I expect that flagging will not affect these variables, as Chinese state media need to follow official regulations and should not significantly change their coverage in response to the intervention. The results suggest that source flagging does not significantly change these variables (Table C6 in the Appendix C).

Fifth, I consider another counterfactual scenario by examining media accounts that are not labeled but post topics similar to flagged accounts. I select Hong Kong's South China Morning Post (SCMP) as the example, as it also focuses on the coverage of China and is not flagged by Twitter. The expectation is that SCMP's audience engagement should not significantly change after August 6. I estimate the effect using an OLS model. The results reveal no significant differences in the level of engagement, $b = .22$, $p = .45$, and trend, $b = .02$, $p = .50$.

Finally, I estimate the flagging effect for Chinese state media that publish content in Chinese. In addition to English-language accounts, People's Daily and China News Service also operate Twitter accounts publishing tweets in Chinese. These two are also labeled by Twitter. However, I expect that flagging Chinese-language accounts will not affect audience engagement of these accounts, as those who speak Chinese should already know that these agencies are state-affiliated media. I run OLS models and find no significant differences in the level, $b = .00$, p

= .64, and trend, b = -.01, p = .46, for People's Daily. The model for China News Service also receives no significant results for the level and trend, b = -.03, p = .81 and b = -.01, p = .30, respectively.

Discussion

While Study 1 and Study 2 have revealed the practice of China's globalizing propaganda, it is equally important to understand how social media platforms like Twitter could regulate and limit the spread of information by labeling propaganda sources. As Chinese state media depend heavily on Western platforms for the production of propaganda, the analysis of the regulation of such operations tells us to what extent Western platforms can restrict and govern globalizing propaganda. Facing the challenge of foreign propaganda, social media platforms have taken multiple measures to warn users and facilitate access to credible content. Using a quasi-experimental design, Study 3 provides insights into how the flagging of propaganda sources affects information sharing and regulates the spread of propaganda on social media. I find that labeling accounts as state-affiliated media could immediately lower the level of audience engagement and further lead to a long-term reduction, particularly for political content.

Study 3 offers five implications for the study of globalizing propaganda. First, it offers insights for understanding China's rising role in global communication. While Western mainstream media still dominate the global information landscape, Study 1 and Study 2 find that China is becoming increasingly competitive by wielding Western platforms for providing alternative news. Although this may be the case, the findings of Study 3 show that social media platforms can still regulate audience engagement with Chinese state media, as flagged accounts suffered the loss of audience engagement. This means that the effectiveness of China's

globalizing propaganda still depends on platforms, which could restrict China's efforts in reshaping the order of global communication. Yet, I also find that flagging could not discourage all news sharing, arguably because these accounts have attracted loyal audiences. For instance, CGTN still maintained 70 percent of sharing after the intervention. Thus, Chinese state media have substantial leverages to influence global communication.

Second, I test two behavioral effects with two types of changes (levels vs. trends). Using real-world intervention and behavioral data, I find strong evidence supporting the claim that Twitter's use of propaganda labels is effective as it discourages users from sharing information posted by Chinese state media. I argue that there are two possible explanations for corrective effect: source verifications and online presence. First, it is possible that many users did not know these accounts were state-affiliated before the intervention. As discussed, source cues play a crucial role in information processing and decision-making (Chaiken, 1980; Sundar, 2008). Twitter's flagging thus helps authenticate state-affiliated accounts and triggers heuristic-based judgments (Chia & Cenite, 2012). In other words, the state-affiliated media labels could forewarn Twitter users of the propaganda nature of the sources, which debunks these accounts and further diminishes audience engagement (Nassetta & Gross, 2020). Second, some users might already know that these accounts are Chinese state media , but the introduction of source flagging deters them from engaging with these accounts. This is possible because sharing tweets created by flagged accounts may damage one's online reputation, as previous studies find that social media users express themselves and manage online presence through information sharing (Kraft et al., 2020; Lane et al., 2019). These findings highlight the importance of platform regulation for regulating international propaganda.

Third, Study 3 reveals that flagging propaganda sources might be more effective in dissuading people from sharing political content. This finding suggests that flagging has the potential to restrict the diffusion of political news created by propaganda sources. Furthermore, I find no evidence that the flagging effect differs between China-related news and non-China-related news. As China's foreign propaganda emphasizes "telling China's story" and "spreading China's voice", it aims to compete with Western media in shaping not only the image of China, but also the public discourse of international affairs, as I have found in Study 2. The results of this chapter point out that Twitter's flagging evenly dampens these two strategies.

Fourth, the ITS analysis provides new directions for studying globalizing propaganda, as previous literature rarely investigates how social media companies can govern and regulate the spread of international propaganda on their platforms. I argue that flagging could affect information sharing in two ways: immediate change after the intervention (i.e., the change of levels) and gradual change across time (i.e., the change of trends). The findings of Study 3 reveal immediate effect on overall user engagement, as well as delayed effect on the sharing of political information. This further propounds that flagging could have different types of effects, and thus we need to consider flagging as a social dynamic rather than static processes. Moreover, I find that source flagging could have a long-term impact on audience engagement. This means that the observed effect of flagging is not a result of novelty. Instead, flagging has the potential to consistently decline the spread of propaganda content on social media.

Notably, I also find that flagging does not uniformly deter engagement across these media accounts. It corroborates previous findings that the effect of flagging is socially and politically contingent (Margolin, Hannak, & Weber, 2018). While most accounts lost audience engagement after being flagged by Twitter, I do find that some accounts received more likes and

retweets after the intervention. Furthermore, the declining pattern of audience engagement is also not the same across these accounts. One explanation is that these media accounts adopt different strategies for spreading propaganda. For example, CGTN portrays itself as an international media organization in its profile and does not mention its connections with China. Thus, many users might not know that CGTN is state-affiliated before the intervention. China Daily, by contrast, clearly identifies its connections with China in usernames and accounts, and hence people can easily recognize its affiliations without flagging. Another possibility is that source flagging would only deter certain groups of people (e.g., those who do not hold favorable attitudes toward China) from news sharing, but could not affect those who have favorable attitudes toward or are interested in China.

Fifth, Study 3 also has practical implications for social media platforms, fact-checkers, and policymakers. I find that source flagging generates corrective effect immediately after the intervention, which provides evidence-based support for the use of flagging labels on social media. This is encouraging in light of the growing concerns about the effectiveness of corrective measures counteracting the operation of foreign propaganda in particular and information warfare in general. Nevertheless, I also observe that Twitter's flagging does not have the same impact across flagged accounts. It thus suggests that flagging should not be considered as a panacea for platform governance. In order to improve the corrective measures, social media platforms need to develop multiple tools for offering credible content and consider tailor designing their corrective measures.

Study 3 benefits from a quasi-experimental design which allows us to estimate causal inference in the real-world setting. Despite this strength, I note that it has several limitations. First, while the conclusions have high levels of ecological validity, the psychological

mechanisms underlying people's reactions to source flagging is still unclear. Previous studies have found that the presence of labels could influence how people evaluate the information, and the evaluation further leads to behavioral changes (Chung & Kim, 2020; Mena, 2019). Thus, it is possible that the introduction of flagging labels reduces people's perceptions of source credibility, and the declined perception further discourages engagement with flagged accounts. Therefore, further research could examine how people assess flagged sources.

Second, it is beyond the scope of Study 3 to identify who disengaged with these accounts after the intervention. This is partially due to Twitter's restricted API policies, but I believe it holds important explanations to the flagging effect. Future research could test these explanations using network data. Third, due to the quasi-experimental nature of the study design, I cannot exclude the possibility that other exogenous factors might be at play, such as the changed structures and patterns of audience engagement on Twitter. Fourth, I focused on one platform and media accounts from one country. In fact, Twitter labels other countries' state-affiliated media (e.g., Russia), and Facebook and YouTube also introduce similar measures. Future research hence could benefit by examining the effect of source flagging across platforms and countries.

Considered collectively, the findings of Study 3 contribute to the growing body of scholarship on the effect of flagging and international propaganda on social media. The evidence presented here suggests that the introduction of flagging is effective in immediately reducing the sharing of propaganda content, and such corrective effect does not disappear in the long-term period. Study 3 thus suggests that the impact of international propaganda still depends on the regulation of the US-based platforms, and this dependency could further restrict China's globalizing propaganda.

Chapter 5 Conclusion

Revisiting Globalizing Propaganda

The goal of this dissertation is to contribute to the understanding of how state power has been displayed, exercised, and restricted through communication by focusing on China's globalizing propaganda on Western social media platforms. In the social media age, the formation and management of communication are certainly the key means of constructing power (Castells, 2013). Today, we are facing a completely different situation in which Chinese state media extensively disturb established global communication order in many ways, and they do this in part by leveraging Western platforms such as Facebook and Twitter. In essential, Chinese state media are challenging the global communication order and reversing the international information flows that run from the West to other regions. Therefore, we need to think differently in important ways about how to study state power and communication in the global and comparative context.

This project begins with the question "to what extent and in what ways are Chinese state media leveraging Western platforms that are blocked in China for propaganda operations?" Although China has become a key economic and political power in the world, it presents a paradox when it comes to communication and media. Its censorship systems, propaganda apparatus, and the Great Firewall indicate that the Party-state adopts a subtractive way for managing and controlling information flows. Previous studies in communication and political science have shown that removing unfavorable content, manipulating public opinion,

and restricting information access are common ways employed by state actors (Creemers, 2017; Han, 2018; King et al., 2013; Roberts, 2018). In contrast, in this dissertation, I argue that China's rise on Western platforms has resulted in a significant transformation in the power structure of global communication. Rather than exploring whether and how social media can democratize authoritarian regimes, we need to study how a rising power wields and presents power via global communication. This dissertation reveals that China has employed an additive approach to reshape global communication and improve state power by leveraging Western platforms. This approach suggests that the operation of propaganda is not restricted to the domestic sphere; the Party-state instead conducts propaganda outside its territory to exercise communication power in the world.

Theoretically, this dissertation contributes to the transformation of global communication and the rise of international propaganda on social media. First, while the current global communication order is primarily ruled by Western nations, rising powers like China are increasingly challenging and shifting the structure and components of the order (Diamond et al., 2016; Sparks, 2019; Thussu, 2018; Youmans & York, 2012). This could significantly change how power is distributed and who holds the power online. Second, one of the most influential strategies used is to globalize propaganda apparatus in order to reshape the international information flows and affect global audiences (Elswah & Howard, 2020; Lukito, 2020; Wright et al., 2020). Initially, propaganda was considered an important means for persuasion and manipulation during wars (Lasswell, 1938; Lazarsfeld & Merton, 1948). More recently, the rapid growth of foreign propaganda and mis-/disinformation campaigns on social media have raised public concerns (Golovchenko et al., 2020; Woolley & Howard, 2018). It is against this

background that this dissertation seeks to explore how China is globalizing its propaganda, who are involved in the process, and how Western platforms regulate this practice.

Building upon these scholarships, I propose and test a theoretical framework that systematically examines the practice and regulation of globalizing propaganda. In many respects, the findings from three empirical studies clearly illustrate the ways in which Chinese state media adopt Western platforms for promoting the presence of a non-Western and non-democratic nation and shaping international information flows, though the effectiveness still depends on the governance of platform stakeholders. For example, Study 1 and Study 2 provide convergent evidence that Chinese state media generate a curated selection of news stories for China and other countries, and economic ties are important factors affecting the structure of international news coverage. Study 3 further shows that Western platforms have the ability to confine the spread of China's globalizing propaganda through source flagging.

In this dissertation, I argue that globalizing propaganda has to be conceived as a whole system that involves multiple stakeholders and components that cannot be considered separately. Altogether, these stakeholders and components explain how globalizing propaganda has been operated and limited on a given platform, how various actors are connected and interacted, and how globalizing propaganda constitutes a moment of major shifts in global communication. There is no doubt that the rise of China in global communication will not only dramatically transform the structure and content of the existing global information landscapes, but also change how scholars theorize and analyze global communication and state power in the social media age. This is why, in this dissertation, I have devoted particular attention to the role that Chinese state media play in shaping the counter-flows of international news and its dependence on Western platforms.

Counter-flows and Dependence

As I have stated earlier in Chapter 1, a detailed understanding of globalizing propaganda requires a framework that involves actors and components behind the rise of China in global communication. My framework proposes that there have four stakeholders and two components. A basic assumption of the framework is that the host country intends to display and exercise its power at the international level through the use of Western platforms. The findings from this dissertation suggest that Chinese state media signify a counter-flows of international information. The production of counter-flows and the display of state power are facilitated through two mechanisms: the cultural and social presence of the host country and the focus of international economic connections.

The framework helps identify theoretical contexts of global communication and propaganda, and further expands previous studies into the context of international propaganda on Western platforms. As I have noted in Study 1, the practice of globalizing propaganda is conceptualized as the supply and demand of international news on social media platforms. The supply-side indicates the production of the counter-flows, whereas the demand-side is related to the consumption of and engagement with the counter-flows. While previous studies claimed that politics and other types of hard news are central to the operation of propaganda at home (Ellu, 1973; Jowett & O'Donnell, 2014), I find that Chinese state media tend to report China as a culture and society rather than a polity. The emphasis on non-political topics suggests that China's globalizing propaganda is significantly different from its domestic propaganda which focuses predominantly on political and ideological content (Brady, 2009; Creemers, 2017). To "tell China's story", Chinese state media strategically highlight China's cultural and social

aspects for global audiences. The attractiveness of culture and society suggests the softening of propaganda for global audiences. Moreover, as Study 1 has revealed, this practice does attract Facebook users to engage with propaganda content, particularly China-related news. This indicates that the cultural and social presence of China has substantially encouraged the consumption and distribution of the counter-flows.

In addition, the framework also helps us understand the reporting of foreign nations and factors explaining the structure of international news coverage. This extends propaganda research that initially focuses on the host country into the consideration of other countries and international news. My dissertation underscores that international news coverage in globalizing propaganda is a strategic response to international economic conditions. In particular, I find that Chinese state media cover foreign nations in systematically different ways, and more importantly, economic connections are important factors that predict the structure of international news. The finding that foreign news coverage in Chinese state media is mainly driven by China's interest in international economic engagement suggests that globalizing propaganda also facilitates China's connections with other countries. As I have discussed in Chapter 1, the global information environment is largely dominated by Western mainstream media (Winseck & Pike, 2009), and the dominance could shape and construct how global audiences understand foreign nations and international affairs. The pragmatic approach in the coverage of foreign nations allows Chinese state media to offer counter-flows and alternative perspectives that fit with China's national interest.

However, my dissertation has recognized the dependence behind China's globalizing propaganda. Although Chinese state media have strategically produced news content and progressively highlight China's economic connections with other countries, an important

assumption is that this practice has to rely upon Western platforms like Facebook and Twitter. It is this dependence that could confine and reduce the dissemination of the counter-flows. In Chapter 1, I define the regulation of globalizing propaganda as a system of rules, norms, and policies that manage and govern users and content of an online platform. As I have revealed in Study 3, this concept is tested by examining the effect of state-affiliated media labels in Twitter. My findings suggest that source flagging significantly reduced news sharing among flagged Chinese media accounts. This hence suggests that the effectiveness of China's globalizing propaganda still depends on platform governance, and this could remarkably restrict China's efforts in reshaping global communication and exercising state power.

Interestingly, I also find that both China-related news and non-China-related news are impacted by the use of state-affiliated media labels. This suggests that flagging propaganda sources could evenly dampen the strategies of telling China's story and the coverage of foreign nations. In other words, China's counter-flows of international information might not be able to achieve the goal of presenting China as a culture and society and meantime highlighting its international economic connections. This raises a dilemma for China's globalizing propaganda. On the one hand, the use of Western platforms helps state media to gain millions of followers and disseminate propaganda content. On the other hand, the dependence also shows that Western platforms can regulate China's globalizing propaganda.

Methodologically, this dissertation examines the significance of multilevel actors and components of globalizing propaganda. My analysis involves both micro-level communication (Study 1 and Study 3) and macro-level contexts and variables (Study 2). As I have discussed in Chapter 1, the use of multilevel modeling helps researchers take into account complex communication phenomena. Specifically, the unit of analysis in Study 1 is social media posts,

the unit of analysis is countries in Study 2, and it changes to daily communication in Study 3. The multilevel approach recognizes that globalizing propaganda is complex interactions between a variety of actors at multiple levels. At the micro-level, Chinese state media disseminate the counter-flows in order to shape global information landscapes and attract audience engagement. At the same time, Western platforms use source flagging to regulate globalizing propaganda at the account level. At the macro-level, Chinese state media are driven by country-level factors to produce international news. The recognition of the importance of multifaceted perspectives is what makes this dissertation exceptionally valuable for global communication and comparative political communication.

To summarize, the findings from three studies suggest that globalizing propaganda should be regarded as complex interactions between different actors, rather than a centralized communication model. At the same time, two components are involved in the operation of globalizing propaganda and can facilitate or restrict the production and spread of the counter-flows. Therefore, the framework proposed in this dissertation comprehensively analyzes how Western platforms have been leveraged by authoritarian regimes as a means of displaying and strengthening state power, as well as how these platforms conduct governance in order to limit the spread of globalizing propaganda.

The Sophistication of Globalizing Propaganda

This dissertation project has demonstrated that Chinese state media are globalizing propaganda practices in order to provide counter-flows of international information and affect global audiences on Western platforms. While China's attempts have reached scale in terms of audience size and user engagement, it is still unclear whether and to what extent China's

globalizing propaganda is sophisticated or not. I consider sophistication as the process and result of becoming more complex or subtle given certain conditions. As such, the sophistication of propaganda shows that state media have the ability and intention to adapt and modify their propaganda strategies if the environment and/or platforms alter. This is important because the results of Study 3 have suggested that the dependence can restrict the dissemination of globalizing propaganda.

In Table 5-1, I offer a structure of sophisticated globalizing propaganda. I identify three research focuses, namely, effectiveness, innovation, and adaptation. It is worth noting that this is not an exclusive topics about sophisticated propaganda; instead, I argue that these three dimensions represent the most prominent topics regarding the operation and consequence of sophisticated propaganda. First, effectiveness indicates the outcome of sophisticated globalizing propaganda. That is, how and to what extent globalizing propaganda can influence foreign audiences and alter their attitudes, perceptions, and behaviors. This dimension can be operationalized into multiple indicators, such as the number of news sharing and people's evaluation of China. In this dissertation, I have systematically examined the effectiveness of China's globalizing propaganda in three studies, focusing on audience engagement. Collectively, the findings from three studies suggest that Chinese state media have attracted considerable amounts of audience engagement, particularly for China-related information. Therefore, China has achieved sophistication in terms of effectiveness on Facebook and Twitter. Nevertheless, audiences engagement is one indicator of effectiveness, other indicators like public opinion may tell a different story about the sophistication of China's globalizing propaganda. Future research could look at whether and how Chinese state media change foreign audiences' attitudes and perceptions.

Table 5-1. The Sophistication of Globalizing Propaganda

Dimensions	Research Questions	Empirical studies	Possible Indicators
Effectiveness	• Does globalizing propaganda influence and manipulate public opinion? • Does globalizing propaganda facilitate favorable attitude among foreign audiences?	• Study 1 • Study 2 • Study 3	• Audience engagement (e.g., likes) • Public opinion (e.g., country favorability rating) • National images (e.g., soft power rank)
Innovation	• Does globalizing propaganda employ novel strategies to spread information and interact with audiences?	• Study 1 • Study 2	• The use of popular culture • The collaboration with Internet influencers • The level of direct connections with social media users

Adaptation	• Does globalizing propaganda evolve and modify for new uses or purposes?	• Study 3	• The change of content due to new situations (e.g., Twitter's flagging) • The iteration of propaganda strategies

The second dimension, innovation, refers to the user of novel and new strategies for globalizing propaganda. As I discussed in Chapter 1, traditional propaganda operations focused on political and ideological content, while China's recent attempts have employed popular culture and digital media. In Study 1 and Study 2, I have revealed that Chinese state media produce a variety of topics for China and other countries. To tell stories of China, these media organizations highlight the cultural and social aspects of China, meaning that globalizing propaganda move the attention away from political content. To report foreign countries, Chinese state media consider the importance of international economic connections. These findings suggest that China's globalizing propaganda does adopt novel strategies for producing and spreading information. Moreover, the dimension of innovation has other indicators, such as collaborating with Internet celebrities and influencers to promote China-related elements or interacting with Facebook and Twitter users. These practices could be included in future research.

Finally, adaptation indicates the capacity of evolving and modifying globalizing propaganda for new uses or purposes. This is perhaps the most challenging aspect of sophisticated propaganda, because adaptation suggests that state media have the potential to change their strategies by which globalizing propaganda becomes better suited to the global information environment. Study 3 has demonstrated that Wester platforms can effectively regulate the spread of globalizing propaganda, and Chinese state media do not significantly alter their content. This result suggests that these news outlets still follow the routine for offering content on Western platforms after being labeled as state-affiliated media. Therefore, Chinese state media may not be able to immediately modify and evolve their practices when the media

environment has changed. This could further limit the impact of China's globalizing propaganda on Western platforms.

Future Directions

While this dissertation benefits from the use of large-scale social media data and computational methods, I also recognize several limitations of my analysis that could be addressed in future research. First, I explore the demand-side of globalizing propaganda by looking at audience engagement on Facebook and Twitter. Although engagement is an important measure of the spread and success of online news (Zamith, 2018), whether and how the counter-flows could influence individuals' attitudes and perceptions are still unclear. It is possible that the cultural and social presence of China could increase people's favorability of China and further lead to the change of public opinion. It is also possible that the focus of international economic connections will set the agenda to affect how foreign publics evaluate China's globalization. Alternatively, one could argue that selective exposure exists in globalizing propaganda, so those who do not hold favorable attitudes toward China will not read and/or share news provided by Chinese state media, particularly news about China. Therefore, globalizing propaganda could generate polarization among social media users. Future research could investigate psychological mechanisms and media exposure behind the dissemination of globalizing propaganda.

Second, although the use of social media data provides a high level of external validity, it inevitably introduces the difficulty of fully controlling research design, avoiding selection bias, and understanding the data generating process. Social media data also cannot answer questions regarding the institutional and organizational structure of Chinese state media. Furthermore,

there have debates about data collection and analysis using social media platforms, and scholars question the change of API policies (Freelon, 2018). Therefore, data used in this project might not tell the whole story and could hide some important aspects of globalizing propaganda. For example, it is not clear how social media posts are created by journalists and editors working for globalizing propaganda. It is also unclear how Chinese state media modify their organizational structure to promote globalizing propaganda. Thus, the findings of this dissertation could be supplemented by looking at the institutional and organizational levels of globalizing propaganda.

Third, the rise of Chinese state media on Western platforms is not the only approach that China adopts to construct its power. In fact, Chinese online influencers (i.e., *Wanghong*) have also occupied Western platforms and become influential actors presenting the cultural and social aspects of China. For instance, Li Ziqi, a Chinese female video blogger, has obtained more than 15 million subscribers on YouTube. Moreover, China's investors also actively engage with Hollywood film industry to produce and distribute entertainment content (Kokas, 2018). These approaches do not explicitly display state power and thus receive little attention. However, they illustrate that globalizing propaganda has involved non-political actors to show state power in subtle ways. Therefore, future research could explore the practice and regulation of these non-official activities and their implications on global communication.

Fourth, while this dissertation focuses on global communication and international information, it should be pointed out that China is also substantially globalizing its own platforms and infrastructures. As I have found in Study 3, the effectiveness of China's globalizing propaganda still depends on Western platforms. Yet, the rise of Chinese platforms has challenged the dominance of the US-based tech companies (de Kloet, Poell, Zeng, & Chow, 2019; Keane & Yu, 2019). TikTok, for instance, has become the most popular platform around

the globe and it is owned by China's tech giant ByteDance. Journalists have found that TikTok censored videos that challenge China's policies (The Guardian, 2019). The global expansion of Chinese platforms further complicates our understanding of globalizing communication because China's practice may receive limited regulation and restriction on Chinese platforms.

In addition to digital platforms, China has also devoted massive resources to impact global network infrastructures (Hong, 2017; Kaska, Beckvard, & Minarik, 2019). The Huawei ban and the competition of the fifth generation of wireless infrastructure (5G) between China and the US have illustrated the fact that Chinese telecom companies have become leading actors in communication infrastructure (S. Campbell, Zhao, Frith, & Liang, 2021). This has significant consequences on global communication. Therefore, the emergence of Chinese platforms and tech firms might further empower China to globalize its propaganda apparatus on its own platforms enabled by its own telecommunication infrastructures. This not only avoids regulation conducted by Western platforms but also fundamentally modifies how global communication functions. Future research could hence benefit by exploring how Chinese platforms and network infrastructures facilitate globalizing propaganda.

Conclusion

The rise of China in global communication has challenged our understanding of global and comparative political communication, propaganda, and social media platforms. On the one hand, state-sponsored propaganda has increasingly expanded its scope and reach through Western platforms. Scholars have found that the growth of international propaganda not only create information disorder (Crilley, Gillespie, Vidgen, & Willis, 2020; Elswah & Howard, 2020), but also increasingly shape the international news and information landscape (Huang &

Wang, 2020; Nip & Sun, 2018). On the other hand, the operation of international propaganda relies heavily on Western platforms which are owned by a few American companies. This means that, though state media can attract global audiences on Western platforms (Golovchenko et al., 2020; Lukito et al., 2020), their practices are governed and controlled by these platforms (Nassetta & Gross, 2020). Regardless of the consequences, it is clear that global communication is experiencing a substantial transformation that might change how we understand and study communication and state power in the social media age.

To be sure, the proliferation of social media has expanded the way by which state media deliver propaganda (Woolley & Howard, 2018). The complex interactions have also shifted propaganda operations (Bastos & Farkas, 2019; Golovchenko et al., 2020). It is against this background I argue that we need to look at the practice and regulation of globalizing propaganda if we want to understand the future of global and comparative political communication. We must consider globalizing propaganda as a new means of displaying and exercising state power around the world. This new approach is shaping and constructing how social media users understand the host country, foreign countries, and international affairs. At the same time, we should not overestimate the effectiveness of globalizing propaganda, as its practice still depends on Western platforms. However, it is important to note that globalizing propaganda is just one tool for achieving the political goal of authoritarian regimes and other approaches have been implemented over the past several years.

To conclude, I find that Chinese state media actively leverage Western social media platforms to provide news stories for global audiences, with the purpose of framing national images and enhancing power. I also reveal that tech companies seek to regulate and restrict the spread of globalizing propaganda on their platforms. Based upon my findings, I argue that the

practice-regulation framework provides a systematic and comprehensive way for analyzing and understanding globalizing propaganda on Western social media platforms.

Appendices

Appendix A: Study 1

Table A1. Examples of News Topics and Posts

News topics	Examples of News posts	Links
Accident/disaster	A policeman keeps the stranded people in order at the landslide site in Akto, northwest China's Xinjiang Uygur Autonomous Region. A landslide triggered by rainstorm happened before dawn on Monday, blocking about 3 kilometers of the Sino-Pakistan highway. Hundreds of vehicles and more than 1,000 people were stranded in the mountain area of the Pamirs.	URL
Civil rights	Riot police detain a demonstrator during a protest and urban intervention held by members of the "Chilean Network Against Violence against Women" organization, outside La Moneda Palace in Santiago, capital of Chile, on March 11, 2016. (Xinhua/Jorge Villegas)	URL
Culture/entertainment	The World Heritage Committee of the United Nations Educational, Scientific and Cultural Organization (UNESCO), announced on Sunday the inscription to the World Heritage List of the Padre Tembleque Aqueduct of the Hydraulic System, which was built in the XVI century on the initiative of the Franciscan Fray Tembleque and is located in the Central Plateau	URL
Economy	China is the largest trade partner of #Finland in Asia for past 12 year, with bilateral trade of $6.36 billion in 2016	URL
Education	In a rare move, the ministry released guidelines on early childhood education on Monday, in an effort to curb the growing practice of young children being educated in a way that pushes them beyond what children at their age should learn.	URL
Environment	The population of China's endangered animals, including giant pandas and Siberian tigers, is on the rise thanks to billions of yuan in investment. The latest wildlife census shows the number of wild Siberian tigers has risen from 12 to 16 in 2000 to 18 to 22, while just seven crested ibis were found in 1981, compared to the more than 1,700 that now live in the wild and in captivity.	URL
Health	A staff member of an exhibitor introduces a touch screen system for medical imaging consultation at the 22nd China International Medical Equipment & Affiliated Facilities Exhibition and Scientific Conference (CHINA-HOSPEQ 2013) in China's capital Beijing. The three-day CHINA-HOSPEQ 2013 kicked off Friday at China National Convention Center.	URL

International affairs	Japan and Australia Wednesday held their 5th round of ""two-plus-two"" talks involving foreign and defense chiefs from both sides and vowed to enhance bilateral security and defense cooperation, especially in the area of submarine technology transfer."	URL
Law/crime	#BoXilai trial: Video testimony of Bogu Kailai released by Jinan Intermediate People's Court. http://ow.ly/obPwk	URL
Military/terrorism	12 suspects have been arrested in Tunisia in connection with Friday's deadly attack in the Tunisian resort of Sousse	URL
Politics	China in 2017 aims to deepen the nation’s supervisory reform, strengthening a push to punish those who violate the Party’s rules.	URL
Science/technology	Dancing robots are displayed during the expo in Qingdao, east China's Shandong, July 7, 2016.	URL
Society/family	A farmer helps villager Peng Qiugen harvest rice on the roof of Peng's house which had been converted into a rice field at Qilin Village of Shaoxing City, east China's Zhejiang Province, Nov. 18, 2013. Peng several years ago transformed the roof of his house into a farmland, in which rice, watermelons and vegetables have been harvested in different seasons.	URL
Sports	Netherland's forward Robin van Persie controls the ball during a training session at the Estadio Nacional in Brasilia, Brazil, Friday. Dutch squad plays Saturday's third-place match against host Brazil. FIFA World CupWorldcup	URL

Table A2. News Topics Codebook

Topic	Instructions	
General information	This codebook is based on upon UK codebook, New York Times Index Data Codebook, and Bright's research (2016). The purpose of the study is to understand news content produced by news media on Facebook.	
Unit of Analysis	Facebook posts in the dataset	
Coding Instructions	You will be coding news contents collected from Facebook pages. You will be coding directly into a form provided for you in Excel. The procedure followed two main phases: designing and refining our coding procedure and applying it.	
Coding procedures	1 - Selecting which posts must be coded: All posts in the dataset must be coded, unless the message column does not contain any text. 2 - Determining type of post (specified below). Next, you assess the type of article through several variables (0=no, 1=yes, or NA)	
	Accident and disaster	a) Accident news: post that is almost exclusively about a sudden calamitous event bringing great damage, loss, or destruction, such as fire, plane accident b) Disaster news: post that is almost exclusively about unforeseen and unplanned event or circumstance, such as earthquake, floods, droughts, and other natural disasters.
	Economics and business	a) Economic news: domestic macroeconomic issues, inflation, prices, and interest rates, unemployment, banks, national budget and debt, taxation, tax policy, and tax reform etc. b) Business news: commercial and companies' activities, customers, industry plan and policy, investment, manufacturing issues, domestic and international trade, and other financial issues etc.
	Politics and government	a) Politics news: political elections and vote, politicians' activities and speeches, political institutions, political affordance, political party etc. b) Government news: public policy, policymaking, government efficiency, bureaucratic oversight, corruption etc.
	Civil rights, minority, immigration	a) Civil rights: human rights protests, civil rights enforcement, taking private property, impact on private property rights, voting rights and issues, freedom of speech, anti-government activities etc. b) Minority: ethnic minority and racial group discrimination, gender and sexual orientation discrimination etc.

		c) Immigration: right to asylum, political asylum, refugees, immigration and nationality policy, visas, border controls, right to enter the country etc.
	Military, defense and terrorism	a) Military: military activities, wars, army services, soldiers etc. b) Defense: defense forces, defense policy and budget etc. c) Terrorism: terror attacks, terrorists, hostages, bombing etc.
	International affairs	a) Countries: developing countries issues, international finance and economic development, foreign diplomacy, Ministry of Foreign Affairs, Foreign Minister, Ambassador issues, neighboring countries, Israel and Palestine etc. b) International Organizations, the United Union, International Red Cross, African Union etc.
	Law and crime	a) Law: laws and regulations, law enforcement agencies, the judicial system, improving justice etc. b) Crime: criminals, fraud, prisons, embezzlement, organized crime activities, racketeering control, organized crime, illegal drug production etc.
	Health	a) Health care reform, health system, insurance etc. b) Diseases, medical devices, hospitals and doctors, patients etc.
	Science and technology	a) Scientific research: natural science, social science b) Technology: robots, satellite, spacecraft, technological innovation, big data etc.
	Sports	a) Sport activities b) Sport stars and teams
	Education	a) Education system and reform. b) Schools, teachers and students, tuition fee.
	Environment and nature	a) Environmental issues: greenhouse, climate change, pollution, environmentalists, b) Nature: nature reserve, animals, botanic, natural scenery.
	Society and family	a) Society: social issues, transportation.

		b) Family: family issues, marriage, ordinary life.
	Arts, Culture and Entertainment	a) Arts: art performance, art products, artists, art shows. b) Culture: cultural heritage, cultural activities, historical issues, museums. c) Entertainment: travel, holidays, festivals, tourists, fashion, movies.

APPENDIX B: Study 2

Table B1. Descriptive Statistics of Countries Covered by Chinese State Media

Country	Posts	Likes	Retweet	Sentiment
Afghanistan	1465	649.3355	27.27561	-0.20586
Albania	29	921.3523	23.67803	1.253788
Algeria	257	311.8798	27.50243	-0.00672
Angola	206	528.804	38.92071	0.319615
Antigua	9	690.8	20.53333	1.533333
Argentina	1060	968.0753	41.5975	0.530361
Armenia	83	1149.754	32.90251	0.304466
Australia	2735	2117.738	105.9061	0.540664
Austria	373	1872.714	84.40314	-0.10768
Azerbaijan	62	1275.007	75.56836	0.672531
Bahamas	40	3163.923	169.0196	0.683977
Bahrain	58	824.6738	27.28751	0.066251
Bangladesh	513	1608.848	80.60468	0.142606
Barbados	12	3966.771	169.7917	3.604167
Belarus	225	1339.828	53.36282	1.695712
Belgium	1411	789.1657	31.97237	0.159363
Belize	6	6180.333	201.5	0.666667
Benin	136	239.334	40.35141	0.419387
Bhutan	37	2095.369	83.5746	2.139683
Bolivia	190	877.8602	39.49943	0.085138
Bosnia	81	2316.804	87.91365	-0.34036
Botswana	197	2030.567	130.8574	0.041483
Brazil	2701	1031.454	44.74044	0.334038
Bulgaria	147	989.1033	40.1455	0.649268
Burundi	557	130.1825	20.68567	-0.0789
Cabo	7	32.41667	4.25	-0.91667
Cambodia	451	1480.891	64.2248	0.877594
Cameroon	458	319.3881	53.63244	-0.24969
Canada	1928	1772.322	78.46147	0.462708
Central African Republic	355	98.66269	8.553373	-1.01916
Chad	287	229.1492	23.82649	-0.45149
Chile	882	970.3604	47.35372	0.248685
Colombia	894	703.6792	82.38336	0.192826

Comoros	22	1005.861	64.01111	0.888889
Congo	791	307.5883	21.67953	-0.93528
Cook Islands	4	183.3333	2.166667	4.333333
Costa Rica	218	1105.545	78.87193	0.341882
Côte d'Ivoire	238	234.4959	37.72167	0.084475
Croatia	147	2546.491	106.3443	0.47391
Cuba	1447	699.42	29.5623	0.366363
Cyprus	111	1456.407	38.81348	-0.27507
Czech Republic	391	2643.574	98.82168	0.768697
Denmark	328	1632.009	87.71303	0.208194
Djibouti	148	1104.549	55.87354	0.95444
Dominica	64	2090.055	95.69281	-0.24658
Ecuador	773	1080.113	60.24928	-0.11891
Egypt	3707	446.0634	22.07318	-0.49439
El Salvador	45	901.9481	49.92952	-0.47016
Equatorial Guinea	78	451.5753	34.35228	-0.08744
Eritrea	72	356.8366	36.86132	-0.94505
Estonia	132	1246.213	28.44606	-0.22907
Ethiopia	1232	425.4792	54.27167	0.499362
Fiji	87	1378.958	41.69091	0.967793
Finland	418	1422.824	50.05633	0.952892
France	5332	1364.747	58.95358	0.148066
Gabon	194	259.4358	19.26696	0.756216
Gambia	267	387.5164	103.1146	-0.65813
Georgia	170	2437.411	144.6965	0.094637
Germany	3417	1367.721	63.94398	0.512724
Ghana	638	280.4579	31.87336	0.269403
Greece	1006	1194.218	46.74118	0.137151
Grenada	9	1067.625	44.5	1.583333
Guatemala	83	739.2085	26.79783	-0.47793
Guinea	499	554.4889	32.46666	-0.9149
Guinea Bissau	50	443.2069	16.90347	-0.19931
Guyana	19	334.9333	11.19722	1.166667
Haiti	147	1109.67	40.61132	-0.77731
Honduras	58	316.2898	18.14586	-0.43491
Hong Kong, China	3824	1550.993	94.57853	0.351259
Hungary	413	2303.384	78.10475	0.42514
Iceland	99	5352.25	263.3228	1.358671
India	4453	1952.253	97.12989	0.197443
Indonesia	1716	1928.172	96.64742	-0.20817
Iran	1652	913.4366	41.06355	-0.01153
Iraq	1318	734.679	31.86667	-1.0839

Ireland	253	1517.206	45.2614	0.950747
Israel	1627	781.2857	38.4219	-0.29723
Italy	4716	2080.485	97.75046	1.03147
Jamaica	92	1302.526	45.80233	0.881735
Japan	6702	1748.055	79.15806	-0.15253
Jordan	323	1114.889	49.76948	0.902464
Kazakhstan	585	1658.984	45.03009	0.735379
Kenya	4299	445.3057	31.97575	-0.2829
Kiribati	4	462.8333	8.5	-1.33333
Korea, North	1216	819.5095	37.47112	-0.13645
Korea, South	2928	1226.753	41.95216	-0.04793
Kosovo	10	1031.542	27.25	-1
Kuwait	83	1312.463	95.52368	-0.37926
Kyrgyzstan	246	1617.144	47.34051	1.291083
Laos	463	1530.362	48.76912	0.808496
Latvia	805	2714.172	165.3545	0.405169
Lebanon	241	580.4407	50.14236	-0.69168
Lesotho	50	177.0027	28.71915	0.382479
Liberia	531	582.7065	29.08428	-0.17978
Libya	1006	306.5196	20.40116	-1.13844
Liechtenstein	4	315	10.5	-1.5
Lithuania	179	1438.6	46.04524	0.186822
Luxembourg	137	1628.917	65.09544	0.428446
Macedonia	82	1685.915	60.62008	-0.0501
Madagascar	243	1340.354	49.4212	0.013966
Malawi	215	245.8624	42.83432	-0.17902
Malaysia	2048	1422.036	110.4605	0.133036
Maldives	3182	3734.407	243.5901	0.159522
Mali	3244	475.5397	32.84359	-0.6937
Malta	90	2235.923	70.12277	-0.41292
Mauritania	91	606.9902	110.2133	0.059322
Mauritius	117	523.6789	32.35453	1.163761
Mexico	1755	841.9125	45.20335	0.275033
Micronesia	6	1060.611	34.88889	1.277778
Moldova	11	637.5417	20.72917	-0.02083
Mongolia	1495	2044.562	97.54291	0.903905
Montenegro	33	1499.816	22.72256	0.685128
Morocco	426	1102.746	85.03016	0.161585
Mozambique	263	599.002	35.33815	-0.1203
Myanmar	1294	1407.136	53.12803	0.34424
Namibia	238	650.9498	49.26006	0.567653
Nauru	4	1138	30	-1.5

Nepal	1512	1769.463	75.94375	0.387215
Netherlands	942	1887.538	200.4079	0.500906
New Zealand	604	1678.487	67.14457	0.804801
Nicaragua	71	731.8403	31.10831	-0.08604
Niger	2741	287.2699	54.55287	-0.51793
Nigeria	2632	287.6051	55.9544	-0.59005
Niue	6	5143.5	194	2.666667
Norway	320	2549.691	130.5122	0.463217
Oman	4867	2039.471	157.148	-0.18748
Pakistan	1924	1342.782	57.97278	-0.0989
Palestinian	902	711.7882	39.23006	-0.42242
Panama	224	725.0599	30.70061	0.183724
Papua New Guinea	48	3991.816	299.053	-0.27009
Paraguay	49	1035.242	33.26	-0.1441
Peru	2575	1147.195	44.68819	0.840297
Philippines	2102	1289.305	80.00973	-0.43493
Poland	422	1409.129	47.4256	0.797725
Portugal	448	1569.164	97.03614	0.79475
Qatar	252	1431.36	45.57705	0.166684
Romania	188	1020.949	48.61573	0.836477
Russia	7144	1542.914	99.40223	0.19134
Rwanda	840	212.4702	24.31938	-0.03281
Samoa	46	4269.587	265.203	0.691458
São Tomé and Principe	46	424.3172	9.05914	0.846237
Saudi Arabia	608	1118.36	97.40223	-0.03376
Senegal	471	234.9852	21.6588	0.111464
Serbia	471	2014.517	68.24979	1.117342
Seychelles	50	828.4081	55.97076	0.389881
Sierra Leone	355	749.695	32.85663	-0.58995
Singapore	1411	1327.168	50.52108	0.25674
Slovakia	89	2140.513	73.47557	1.07037
Slovenia	128	1837.539	64.20808	0.926538
Solomon Islands	9	4382.313	211.75	-1.375
Somalia	1844	319.416	36.35695	-0.97181
South Africa	3216	869.7884	47.58184	0.180046
South Sudan	1497	317.756	22.1135	-0.42822
Spain	1494	1444.5	58.24102	0.156502
Sri Lanka	326	948.6224	29.73441	-0.20703
St Lucia	1	129	0	6
Sudan	1949	367.3626	23.77835	-0.42695
Suriname	6	162.75	24.33333	0.583333

Swaziland	34	127.8225	14.7829	0.252381
Sweden	529	1644.692	137.6139	1.639531
Switzerland	1312	1505.167	80.99362	0.612394
Syria	3139	940.8611	53.30693	-0.72487
Taiwan	2237	1815.654	83.57147	0.257117
Tajikistan	123	1501.097	54.63747	1.491464
Tanzania	924	884.2472	67.6089	0.383489
Thailand	2109	1663.925	90.27789	0.165582
Togo	151	447.1183	35.30774	0.252528
Tonga	158	426.0626	20.65297	0.217328
Trinidad and Tobago	48	522.836	7.53964	0.675676
Tunisia	401	589.4527	24.92415	-0.37274
Turkey	2198	1142.399	61.61193	-0.41614
Turkmenistan	102	1663.196	111.9973	1.279175
Uganda	1367	224.1248	30.24001	-0.33138
Ukraine	1225	1295.916	202.7442	-0.44095
United Arab Emirates	229	2499.123	170.426	0.696459
United Kingdom	6705	1636.05	76.66505	0.401226
United States	26900	1542.886	79.03005	0.202833
Uruguay	154	931.4881	54.71499	0.750925
Uzbekistan	343	1121.929	28.56631	1.579388
Vanuatu	24	3360.05	163.7917	1
Venezuela	670	389.9102	14.48351	-0.26531
Vietnam	1232	1423.906	53.26613	0.015314
Yemen	864	1129.644	59.32776	-0.18305
Zambia	439	866.8162	49.71833	0.277298
Zimbabwe	1156	599.3279	49.68029	-0.11959

Table B2. Descriptive Statistics of Country-level Variables

Country	GDP	Population	Export	Import	BRI	Negativity
Afghanistan	1.95E+10	32785984	368055.8	8810.25	2	3.3245
Albania	1.23E+10	2885250	409899.4	170155.3	1.333333	1.9285
Algeria	NA	38945427	6813386	1378077	0.833333	2.363
Angola	1.26E+11	26958471	3875154	25321662	0.833333	2.0942
Antigua	1.28E+09	92516	270264.6	98.486	0.833333	NA
Argentina	5.51E+11	42431588	8134688	5830944	1	2.054667
Armenia	1.08E+10	2905409	119178.2	133283.3	2	2.2695
Australia	1.43E+12	23280701	37655675	84704274	1	1.386167
Austria	4.15E+11	8537863	2239785	5060227	1	1.308833
Azerbaijan	6.27E+10	9471317	710215.9	262252.3	2	2.457833
Bahamas	1.12E+10	370704.4	723305.3	38623.53	0.833333	NA
Bahrain	3.15E+10	1337807	1059307	223098.6	2	2.2915
Bangladesh	1.67E+11	1.54E+08	10910575	663080.1	2	2.147333
Barbados	4.71E+09	284911.3	76268.17	15677.76	0.666667	NA
Belarus	6.43E+10	9478221	907771.1	671230.9	2	2.222833
Belgium	5.02E+11	11186546	16511147	8980476	1	1.4475
Belize	1.69E+09	357149.5	87179.05	4529.3	0.333333	NA
Benin	1.2E+10	10293739	2784125	173483.3	0.833333	2.0898
Bhutan	1.9E+09	714793.3	12408.56	113.9467	2	1.7355
Bolivia	3.15E+10	10705622	553840.7	372489.8	0.833333	2.079
Bosnia	1.74E+10	3489062	109205.8	35739.77	1.666667	1.918
Botswana	1.52E+10	2081127	259516.4	138126.8	1	1.692667
Brazil	2.27E+12	2.02E+08	30904049	50094105	1	2.130333
Bulgaria	5.42E+10	7220151	1089691	824035	1.666667	1.6376
Burundi	2.71E+09	9855720	46832.12	5935.974	0.833333	2.4076

Cabo	1.63E+09	527944.5	45985.82	52.945	0.333333	NA
Cambodia	1.61E+10	15151740	3233206	457211.7	2	2.179667
Cameroon	3.2E+10	22693866	1569380	625864.5	0.833333	2.1982
Canada	1.73E+12	35231056	28224508	23390972	1	1.350167
Central African Republic	2.01E+09	4466338	12934.4	34129.39	1	3.097667
Chad	1.21E+10	13450394	195717.8	150581.8	1	2.596667
Chile	2.59E+11	17690468	12605646	19991235	1	1.69
Colombia	3.41E+11	46816230	6878359	3810074	1	2.709667
Comoros	1.04E+09	777468.7	44921.16	14.77	0.5	NA
Congo	3.31E+10	72655971	1062708	2826448	1	3.033667
Cook Islands	NA	NA	NA	NA	NA	NA
Costa Rica	5.17E+10	4794530	1152725	3147579	0.833333	1.7572
Côte d'Ivoire	3.54E+10	22393315	1109857	170591.8	1	2.3755
Croatia	5.47E+10	4227918	1143894	110534.4	1.666667	1.6668
Cuba	7.97E+10	11290547	1387306	485775.4	1	2.062167
Cyprus	2.34E+10	1147867	879591.7	59990.47	1	1.9535
Czech Republic	2.03E+11	10532559	7487780	2748097	1.666667	1.3786
Denmark	3.31E+11	5638674	6133574	3580692	1	1.197
Djibouti	2.13E+09	898646	1432571	721.666	0.833333	2.1166
Dominica	5.24E+08	71111.2	29902.21	692.27	0.833333	2.126
Ecuador	9.39E+10	15846739	2699772	922741	1	2.116833
Egypt	2.95E+11	89445067	9454195	1220209	2	2.352833
El Salvador	2.27E+10	6296078	622612	25283.51	0.833333	2.1994
Equatorial Guinea	1.81E+10	1122725	296222.1	1861652	0.833333	1.9452
Eritrea	NA	NA	96651.43	145616.8	0.833333	2.397
Estonia	2.43E+10	1318979	1089562	202166	2	1.708333
Ethiopia	5.29E+10	96797649	2310225	367805.9	1	2.407167
Fiji	4.4E+09	866934.2	271247.2	29033.06	1	NA
Finland	2.59E+11	5446260	5238047	3878684	1	1.386833
France	2.69E+12	66097620	27562713	23923277	1	1.809

Gabon	1.63E+10	1881222	466615.3	1132789	0.833333	2.0026
Gambia	1.38E+09	2025553	312380.8	69301.32	0.833333	2.0938
Georgia	1.61E+10	3729196	797681.1	46100.59	2	2.419167
Germany	3.62E+12	81060699	70004524	92926867	1	1.519167
Ghana	5E+10	26924571	4326130	1044797	1	1.809333
Greece	2.34E+11	10934065	3802255	354749.8	1	2.014833
Grenada	8.88E+08	108529.3	13058.2	13.2275	0.666667	NA
Guatemala	5.79E+10	15305470	1706755	119002.2	0.833333	2.3034
Guinea	8.16E+09	11047803	969078.2	134664.7	1	2.301167
Guinea Bissau	1.07E+09	1671384	16417.92	15917.3	1	2.349333
Guyana	4.14E+09	761481.7	166132.9	29927.3	1	2.1175
Haiti	1.43E+10	10547225	377342.6	11332.01	0.833333	2.1366
Honduras	1.99E+10	8955702	823301.4	142188.1	0.833333	2.3174
Hong Kong, China	2.85E+11	7209667	3.26E+08	15277120	1	NA
Hungary	1.31E+11	9867393	5562909	2927586	1.666667	1.5142
Iceland	1.69E+10	326189	120252.8	76762.39	1	1.116
India	1.99E+12	1.29E+09	52914915	16771851	2	2.617667
Indonesia	9.01E+11	2.53E+08	34325957	26747138	2	1.805
Iran	4.79E+11	77029791	16487218	23163456	2	2.525833
Iraq	2.04E+11	33727868	6471909	14197219	2	3.334667
Ireland	2.59E+11	4653078	2524025	4167817	1	1.4285
Israel	2.90E+11	8146267	7650598	3042904	2	2.814167
Italy	2.07E+12	60216722	28008781	17338653	1	1.761167
Jamaica	1.42E+10	2874647	613506.6	23809.05	0.833333	2.1464
Japan	5.28E+12	1.27E+08	1.44E+08	1.64E+08	1	1.332333
Jordan	3.52E+10	8668752	3108262	247597.7	2	1.958
Kazakhstan	1.97E+11	17168331	10426050	11078666	2	2.0255
Kenya	5.7E+10	46111927	4134601	72966.57	1	2.485667

Kiribati	1.75E+08	111727	33640.35	6747.885	0.333333	NA
Korea, North	NA	24992130	3271823	2646403	1	2.994833
Korea, South	1.39E+12	50590799	92847660	1.73E+08	1	1.808833
Kosovo	6.91E+09	1799160	NA	NA	0.666667	2.062
Kuwait	1.47E+11	3671727	2993422	8785223	1.666667	1.6634
Kyrgyzstan	6.85E+09	5785550	5026203	72453.7	2	2.337
Laos	1.24E+10	6593361	1198021	1218376	2	1.8365
Latvia	2.9E+10	2006254	1213584	109186.8	2	1.677833
Lebanon	4.67E+10	6026968	2105318	25373.04	2	2.728667
Lesotho	2.4E+09	2044194	82168.44	12511.56	0.833333	1.9136
Liberia	3.08E+09	4360503	2088590	180630.3	0.833333	1.963
Libya	4.62E+10	6354344	1862256	2083657	1	2.793333
Liechtenstein	6.43E+09	37271.67	NA	NA	0.5	1.715333
Lithuania	4.45E+10	2930194	NA	NA	1.666667	NA
Luxembourg	6.06E+10	556448.6	1858273	287535.9	0.833333	NA
Macedonia	NA	NA	NA	NA	1.666667	2.032
Madagascar	1.19E+10	23605250	749249.2	147670.2	0.833333	2.0476
Malawi	5.88E+09	16295081	218835.7	35157.73	0.833333	1.7754
Malaysia	3.13E+11	29668385	39722714	56465661	2	1.590333
Maldives	3.52E+09	426461.3	144727.5	255.9417	2	NA
Mali	1.34E+10	16713730	299458	153514.7	1	2.449833
Malta	1.09E+10	436192.4	2379681	608517	0.833333	NA
Mauritania	11.01983	25.516	1166191	NA	0.833333	2.3372
Mauritius	1.21E+10	1260309	722675.8	14564.75	0.833333	1.5446
Mexico	1.2E+12	1.2E+08	29810660	10050461	1	2.457333
Micronesia	NA	NA	NA	NA	0.5	NA
Moldova	8.71E+09	2838086	101104.3	22305.23	1.333333	1.9385

Mongolia	1.17E+10	2911960	2101747	3945767	2	1.808833
Montenegro	4.31E+09	621616	126337.2	29603.63	1.666667	1.9532
Morocco	1.04E+11	34187967	3068359	536665.1	0.833333	2.047
Mozambique	1.58E+10	26316296	1471100	687998.1	0.833333	1.9702
Myanmar	6.34E+10	52043921	7506692	5163875	2	2.294833
Namibia	1.19E+10	2274934	444995.9	238745.5	0.833333	1.8822
Nauru	86779266	12475	1808.03	91.23	0.166667	NA
Nepal	1.99E+10	27022049	1557114	31351.61	2	2.041167
Netherlands	8.43E+11	16847952	60090389	9186252	1	1.532167
New Zealand	1.84E+11	4505467	4358656	7045724	1	1.244
Nicaragua	1.19E+10	6142985	569649.3	60732.33	0.833333	1.9544
Niger	9.89E+09	18907478	167045.1	66582.76	1	2.199667
Nigeria	4.68E+11	1.74E+08	11558846	1534637	1	2.738333
Niue	NA	NA	NA	NA	0.5	NA
Norway	4.64E+11	5101940	2955163	3666922	1	1.479833
Oman	7.29E+10	3881295	1840012	17296093	2	1.9315
Pakistan	2.44E+11	1.93E+08	12609140	2599487	2	3.136
Palestinian	NA	NA	NA	NA	2	2.883
Panama	4.96E+10	3902588	10093585	115466.2	0.833333	1.8828
Papua New Guinea	2.17E+10	7949129	692889.5	1249704	0.833333	2.1078
Paraguay	6.46E+10	11168148	1968676	1608946	0.833333	2.0318
Peru	2.02E+11	41056325	7370395	10072779	1	2.1355
Philippines	3.33E+11	90072954	21253470	16203115	2	2.484167
Poland	5.03E+11	38014319	13731454	2488795	1.666667	1.529
Portugal	2.2E+11	10435715	2973928	1463960	1	1.4315
Qatar	1.79E+11	2374634	1693346	6233205	2	1.559
Romania	1.86E+11	19893718	3090562	1291624	1.666667	1.625

Russia	1.88E+12	1.44E+08	43054027	38546837	2	3.058
Rwanda	7.97E+09	10962679	106112.9	71101.96	1	2.2225
Samoa	7.75E+08	192014.8	62782.7	402.596	0.833333	NA
São Tomé and Principe	3.31E+08	201329.5	6180.615	25.465	0.333333	NA
Saudi Arabia	7.02E+11	30425437	18813583	43322409	2	2.206833
Senegal	1.87E+10	14186226	1565299	82271.05	0.833333	2.0582
Serbia	4.38E+10	7129498	423222.1	138173.4	1.666667	1.9938
Seychelles	1.27E+09	90858	44275.91	226.24	1	NA
Sierra Leone	4.1E+09	6942950	218053.2	677774.1	1	1.819667
Singapore	3.04E+11	5417883	44583630	28526245	2	1.417333
Slovakia	9.45E+10	5418844	2798362	3027388	1.666667	1.5486
Slovenia	4.65E+10	2061533	1950511	323331.8	1.666667	1.3942
Solomon Islands	1.33E+09	595242.3	63340.94	428683.9	0.666667	NA
Somalia	NA	13260318	203702.6	15131.54	1	3.3445
South Africa	3.57E+11	54110571	14987160	37014298	1	2.339167
South Sudan	1.42E+10	10400406	75435.24	2216738	1	2.914833
Spain	1.33E+12	46590929	20260641	6297444	1	1.6335
Sri Lanka	7.51E+10	20726612	3635050	212940	2	2.3405
St Lucia	NA	NA	NA	NA	NA	NA
Sudan	NA	NA	NA	NA	1	3.242333
Suriname	4.97E+09	549226	187459.2	34096.37	0.5	NA
Swaziland	NA	NA	NA	NA	0.833333	NA
Sweden	5.53E+11	9664558	6726307	6732060	1	1.379167
Switzerland	6.86E+11	8140498	3375597	38008275	1	1.3895
Syria	NA	NA	NA	NA	2	3.083667
Taiwan	NA	NA	NA	NA	1	1.694667
Tajikistan	7.75E+09	8167092	1933787	66797.62	2	2.2755
Tanzania	4.65E+10	50005598	3383943	412120.4	0.833333	1.8142

Thailand	4.02E+11	68270569	3322867 3	3835778 3	2	2.416167
Togo	4.29E+09	7139927	2483538	137848.2	0.83333 3	1.9666
Tonga	4.44E+08	101489.4	27981.15	21.754	0.83333 3	NA
Trinidad and Tobago	2.56E+10	1361750	377169.8	114808.3	0.83333 3	2.0878
Tunisia	4.5E+10	11014822	1256120	184622.4	1	1.971833
Turkey	8.92E+11	76601414	1725765 5	3425953	2	2.510667
Turkmenistan	3.8E+10	5465652	988998.1	8094751	1.66666 7	2.1846
Uganda	2.96E+10	36419407	528398.1	64969.92	1	2.187667
Ukraine	1.35E+11	45302771	5602554	3166848	1.66666 7	2.6082
United Arab Emirates	3.77E+11	9235512	3382025 3	1218944 0	1.66666 7	1.7004
United Kingdom	2.81E+12	64402901	5228885 9	1862977 0	1	1.814333
United States	1.72E+13	3.17E+08	3.73E+08	1.42E+08	1	2.172833
Uruguay	5.33E+10	3395654	2155042	2129792	1	NA
Uzbekistan	7.16E+10	30543600	2111729	1384879	2	NA
Vanuatu	7.95E+08	267495.8	173685.4	6544.678	0.66666 7	NA
Venezuela	3.88E+11	29667922	5897098	1050850 0	1	2.455833
Vietnam	1.75E+11	91242986	5045526 4	2185788 3	2	1.861
Yemen	3.75E+10	25486243	1753637	2299679	2	2.795667
Zambia	2.44E+10	15176240	635330.4	2590182	1	1.758333
Zimbabwe	1.84E+10	13465251	431532.9	676719.2	1	2.488

APPENDIX C: Study 3

Table C1. Descriptive Statistics of Flagged Media Accounts

Media accounts	Waves	Tweets	Likes	Retweet	Sentiment	China's news	Political news	COVID-19 news
BeijingReview	0	224	6.846781	1.554639	0.068061	0.826954	0.138538	0.213093
BeijingReview	1	260	3.239363	1.060372	0.185985	0.7394	0.080815	0.179096
BeijingReview	2	259	4.859128	1.832427	0.471062	0.810539	0.089933	0.21886
caixin	0	327	2.698449	2.251008	-0.34851	0.871923	0.083652	0.146492
caixin	1	441	3.588573	3.016499	-0.10007	0.908596	0.104743	0.107737
caixin	2	326	2.55877	1.57108	-0.16772	0.895239	0.124428	0.139887
CCTV	0	210	37.06798	5.297552	0.341061	0.758939	0.130355	0.252844
CCTV	1	202	35.80996	4.599317	0.387685	0.826122	0.158156	0.214193
CCTV	2	215	24.28403	4.246618	0.352339	0.878662	0.127277	0.167747
cgtnafrica	0	813	5.093798	2.762057	-0.16812	0.111859	0.075762	0.3465
cgtnafrica	1	807	3.911079	2.293	-0.16679	0.107813	0.121428	0.295553
cgtnafrica	2	796	3.225963	1.630691	-0.2118	0.087772	0.10404	0.257342
cgtnamerica	0	919	26.03601	11.65107	-0.29194	0.205961	0.192095	0.344599
cgtnamerica	1	904	21.1938	67.48771	-0.38004	0.211689	0.231149	0.258046
cgtnamerica	2	874	20.0433	7.389077	-0.26549	0.222552	0.177054	0.244426
CGTNEurope	0	439	15.04015	8.42838	-0.07518	0.277918	0.104408	0.334201
CGTNEurope	1	375	12.28146	7.508514	-0.16081	0.211184	0.075424	0.237347
CGTNEurope	2	314	9.692535	5.435482	-0.02806	0.285776	0.073024	0.329633
CGTNOfficial	0	2724	53.0091	18.78003	-0.12308	0.403233	0.120241	0.318894
CGTNOfficial	1	2708	41.2551	13.57854	-0.13566	0.418594	0.130182	0.238399
CGTNOfficial	2	2578	41.81437	12.83164	-0.05367	0.429329	0.095901	0.238202

China__Focus	0	99	2.686323	3.500034	0.057193	0.691423	0.114694	0.108226
China__Focus	1	143	2.658357	3.878902	0.166329	0.656228	0.066437	0.086828
China__Focus	2	107	2.462407	3.156614	0.552249	0.710344	0.080079	0.200159
Chinacultureorg	0	102	6.993736	2.441667	0.664966	0.910658	0	0.115136
Chinacultureorg	1	88	7.149581	2.427381	0.59817	0.886442	0.006173	0.143276
Chinacultureorg	2	67	6.116587	2.968968	0.675159	0.761508	0	0.117302
ChinaDaily	0	1700	77.59454	22.1201	0.369677	0.750713	0.092867	0.231538
ChinaDaily	1	1690	71.7049	19.76563	0.451716	0.789157	0.097651	0.17371
ChinaDaily	2	1633	60.48586	15.2238	0.394455	0.756395	0.097634	0.200287
ChinaPlusNews	0	236	7.144668	2.806494	-0.254	0.629165	0.221289	0.238608
ChinaPlusNews	1	191	6.195662	2.00485	0.051702	0.645403	0.274409	0.217838
ChinaPlusNews	2	244	5.906135	2.234508	0.055091	0.622535	0.193194	0.18741
ChinaScience	0	132	379.4177	34.32344	0.483241	0.931571	0.028066	0.151577
ChinaScience	1	134	154.9612	18.92897	0.443751	0.870256	0.015079	0.194596
ChinaScience	2	126	376.6629	30.21151	0.735119	0.904167	0.039881	0.182143
Echinanews	0	681	17.73843	5.124756	-0.00788	0.758166	0.083381	0.31252
Echinanews	1	675	12.78091	3.461414	0.139861	0.760097	0.117471	0.289642
Echinanews	2	667	11.33025	3.576085	0.165175	0.732271	0.118491	0.299714
GlobalTimesBiz	0	420	1.418751	0.923181	0.074846	0.905038	0.091386	0.218465
GlobalTimesBiz	1	359	1.435945	0.62098	-0.01195	0.902853	0.166566	0.190864
GlobalTimesBiz	2	294	1.416844	0.674567	0.206548	0.926965	0.103008	0.160326
globaltimesnews	0	2604	68.13635	17.48317	-0.16221	0.821098	0.074153	0.27603
globaltimesnews	1	2337	55.11821	13.91803	-0.13357	0.799608	0.099514	0.228262
globaltimesnews	2	2342	91.49726	20.55112	-0.05307	0.77292	0.071433	0.21118
Guangming_Daily	0	186	3.787512	0.77312	0.474683	0.923858	0.039382	0.130263
Guangming_Daily	1	195	3.679684	0.591782	0.559432	0.963009	0.021389	0.033182
Guangming_Daily	2	192	3.438049	0.773319	0.489776	0.925867	0.011264	0.039961
ipandacom	0	154	391.4707	84.13981	1.979471	0.931205	0	0
ipandacom	1	140	368.6261	73.73113	2.203214	0.994737	0	0
ipandacom	2	150	389.038	81.28636	1.985065	0.972778	0	0
PDChina	0	751	255.3105	55.82774	0.244695	0.790127	0.063335	0.212508

PDChina	1	725	164.4272	38.62163	0.226868	0.789172	0.096846	0.172158
PDChina	2	732	200.5797	43.25117	0.322992	0.803743	0.107006	0.18938
PDChinaBusiness	0	131	38.95799	4.757125	0.325992	0.972673	0.040675	0.125595
PDChinaBusiness	1	126	36.54358	4.2182	0.433369	0.960119	0.047168	0.087843
PDChinaBusiness	2	130	36.89944	4.702507	0.540458	0.969643	0.051281	0.052724
PDChinaHK	0	64	0.440997	0.155357	-0.08891	0.357738	0.058408	0.132961
PDChinaHK	1	45	0.421429	0.011905	0.182823	0.213861	0.042942	0
PDChinaHK	2	32	0.570513	0.064103	0	0.070513	0.019231	0.025641
PDChinaLife	0	144	500.6634	34.74762	0.955772	0.859307	0	0
PDChinaLife	1	139	183.5273	22.32388	0.810317	0.837229	0	0.027417
PDChinaLife	2	130	529.3309	44.1338	0.984776	0.830844	0	0
PDChinaSports	0	117	404.856	27.20306	0.54623	0.675113	0.039456	0.249036
PDChinaSports	1	93	210.725	13.04405	0.869603	0.68246	0	0.119921
PDChinaSports	2	111	489.1427	26.36808	0.76661	0.654932	0.007937	0.130045
ShanghaiEye	0	384	0.941992	1.225532	0.551303	0.730842	0.043848	0.2869
ShanghaiEye	1	381	0.898791	0.475148	0.371609	0.726645	0.040903	0.331732
ShanghaiEye	2	383	2.258739	0.982419	0.475136	0.76913	0.050459	0.294421
SixthTone	0	165	11.55085	5.58002	-0.44681	0.891389	0.032222	0.165972
SixthTone	1	155	12.84417	6.100976	-0.15109	0.859441	0.049702	0.13502
SixthTone	2	162	5.496865	3.038274	0.041468	0.740635	0.032143	0.073889
thepapercn	0	308	1.640078	1.001055	0.004999	0.862441	0.003096	0.110112
thepapercn	1	372	1.858355	0.962471	0.182616	0.82528	0.012468	0.098598
thepapercn	2	338	2.235845	0.774358	0.259529	0.854905	0.012249	0.088553
thouse_opinions	0	232	18.47435	8.589144	-0.51731	0.721235	0.349651	0.263015
thouse_opinions	1	309	10.18882	4.507881	-0.25397	0.582606	0.38106	0.213214
thouse_opinions	2	246	14.81051	4.80366	-0.18064	0.647794	0.358834	0.228644
XHNews	0	1758	68.8341	22.2585	-0.03383	0.547202	0.082967	0.447511
XHNews	1	1666	65.77557	19.63768	0.067858	0.531222	0.109147	0.395856
XHNews	2	1722	50.09734	15.58195	0.254124	0.572344	0.105676	0.372048
XHscitech	0	100	10.02778	4.43369	0.297242	0.959444	0.00625	0.22504

XHscitech	1	75	9.064787	3.07594	0.559023	0.932456	0.010526	0.402256
XHscitech	2	85	9.716548	4.169286	0.439167	0.859524	0.008333	0.170198
XinhuaTravel	0	58	2963.618	201.1404	0.688596	0.824561	0	0.048246
XinhuaTravel	1	57	1289.467	90.51852	0.537037	0.953704	0.018519	0.02963
XinhuaTravel	2	60	2154.821	154.7042	1.129167	0.95	0	0
yicaichina	0	533	1.558635	1.041927	0.139753	0.779639	0.028697	0.177041
yicaichina	1	589	2.053764	1.326432	0.076276	0.874749	0.037352	0.109673
yicaichina	2	715	4.538368	2.329807	0.068076	0.767513	0.024102	0.173274

Figure C1. PACF (partial autocorrelation function) for Audience Engagement

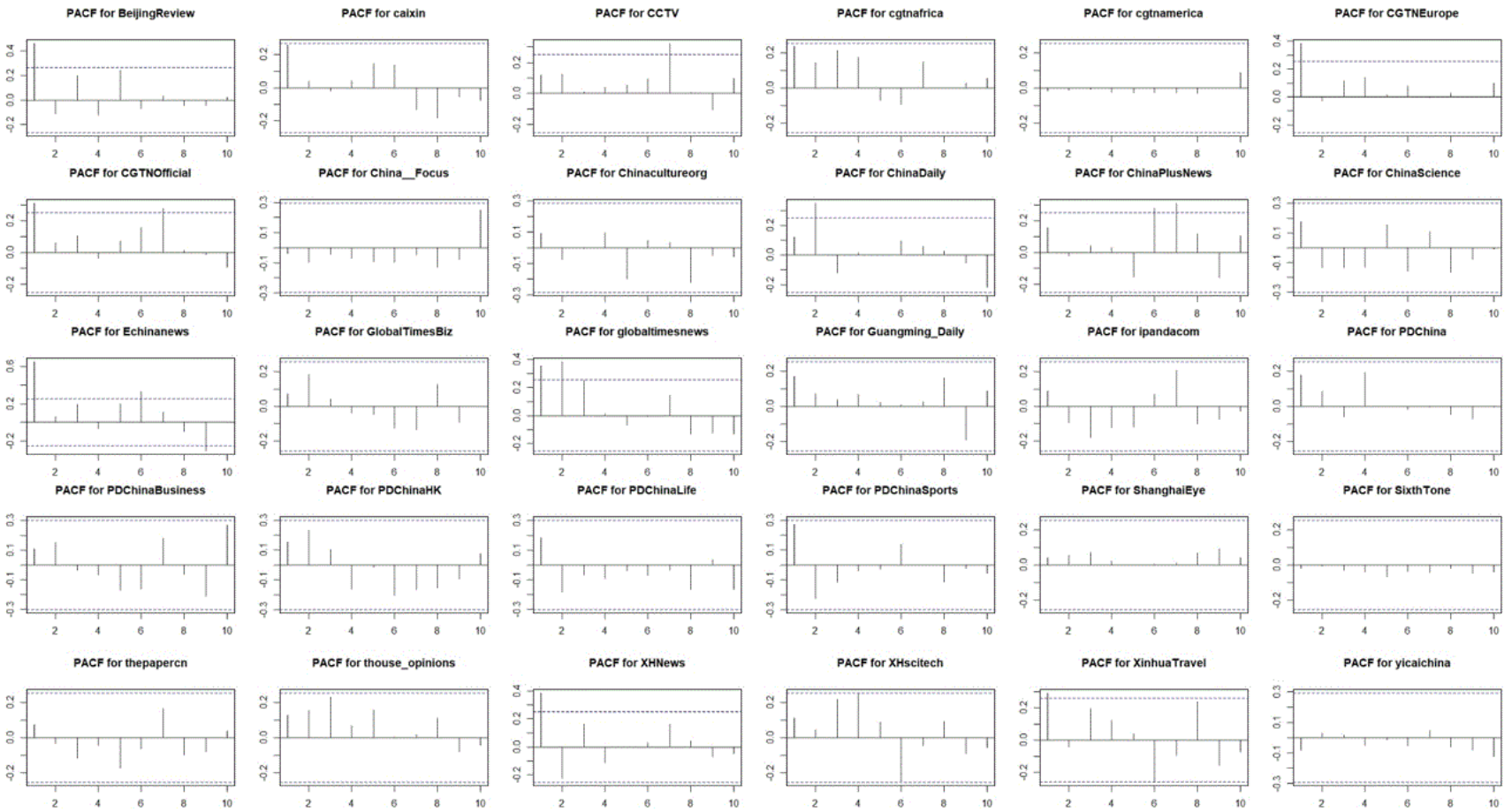


Table C2. Autocorrelation Tests across Flagged Media Accounts

Media accounts	**Ljung-Box test**	**Durbin-Watson test**
@BeijingReview	X^2 = 11.71, p < .01	D-W statistic = 1.07, p < .01
@caixin	X^2 = 3.56, p = .06	D-W statistic = 1.49, p = .07
@CCTV	X^2 = .87, p = .35	D-W statistic = 2.07, p = .99
@cgtnafrica	X^2 = 3.35, p = .07	D-W statistic = 1.85, p = .44
@cgtnamerica	X^2 = .02, p = .90	D-W statistic = 2.04, p = .51
@CGTNEurope	X^2 = 8.81, p < .01	D-W statistic = .28, p < .01
@CGTNOfficial	X^2 = 5.85, p < .05	D-W statistic = 1.76, p = .26
@China__Focus	X^2 = .07, p = .80	D-W statistic = 1.84, p = .33
@Chinacultureorg	X^2 = .37, p = .54	D-W statistic = 1.82, p = .42
@ChinaDaily	X^2 = .85, p = .36	D-W statistic = .07, p = .36
@ChinaPlusNews	X^2 = 1.50, p = .22	D-W statistic = 1.83, p = .40
@ChinaScience	X^2 = 1.30, p = .26	D-W statistic = 1.64, p = .19
@Echinanews	X^2 = 25.54, p < .01	D-W statistic = 1.22, p < .01
@GlobalTimesBiz	X^2 = .28, p = .59	D-W statistic = 1.72, p = .24
@globaltimesnews	X^2 = 7.51, p < .01	D-W statistic = 1.45, p < .05
@Guangming_Daily	X^2 = 1.72, p = .19	D-W statistic = 1.69, p = .20
@ipandacom	X^2 = .43, p = .51	D-W statistic = 1.80, p = .35
@PDChina	X^2 = 1.85, p =.17	D-W statistic = 1.72, p = .19
@PDChinaBusiness	X^2 = .40, p = .48	D-W statistic = 1.83, p = .48
@PDChinaHK	X^2 = .99, p = .32	D-W statistic = 1.67, p = .22
@PDChinaLife	X^2 = 1.39, p = .24	D-W statistic = 1.63, p = .20
@PDChinaSports	X^2 = 3.13, p =.08	D-W statistic = 1.46, p = .08
@ShanghaiEye	X^2 = .10, p = .76	D-W statistic = 1.97, p = .67
@SixthTone	X^2 = .03, p = .87	D-W statistic = 1.05, p = .72
@thepapercn	X^2 = .32, p = .57	D-W statistic = 1.89, p = .55
@thouse_opinions	X^2 = .96, p = .33	D-W statistic = 1.85, p = .48
@XHNews	X^2 = 8.96, p < .01	D-W statistic = 1.46, p < .05
@XHscitech	X^2 = .72, p = .40	D-W statistic = 1.78, p = .29
@XinhuaTravel	X^2 = 4.91, p < .05	D-W statistic = 1.52, p < .05
@yicaichina	X^2 = .30, p = .58	D-W statistic = 1.83, p = .37

Note. H0 = no first-order autocorrelation.

Figure C2. ACF (autocorrelation function) for Audience Engagement

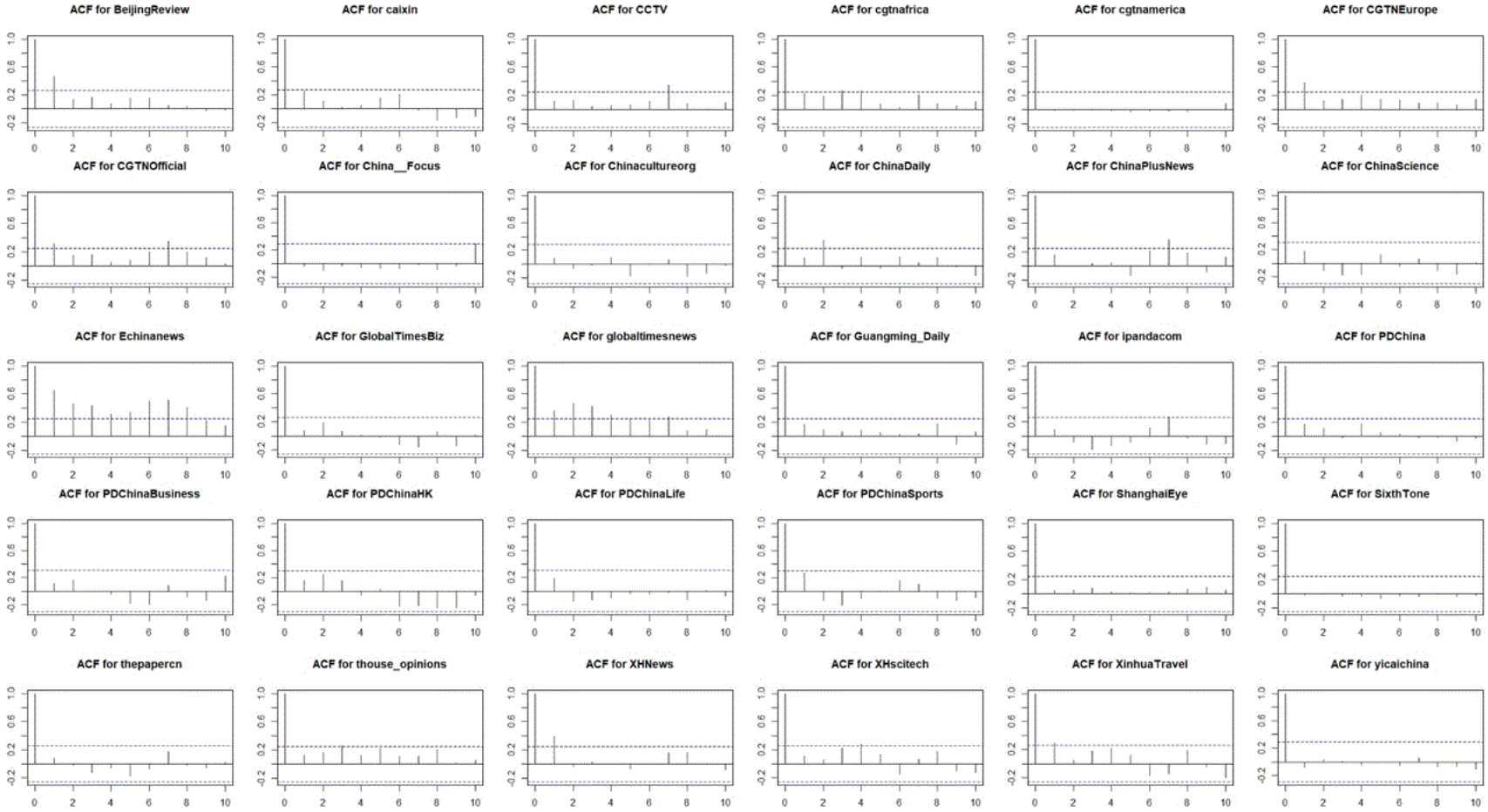


Table C3. Linear Mixed-effects Models Predicting Audience Engagement

	Seven days		**Ten days**		**Fifteen days**	
	Short term	**Long term**	**Short term**	**Long term**	**Short term**	**Long term**
Fixed effects						
Intercept	-4.11 ** (1.28)	-4.11 ** (1.24)	-4.13 ** (1.19)	-4.01 ** (1.16)	-4.00 ** (1.18)	-3.86 ** (1.18)
Time (*T*)	-0.01 (0.02)	0.01 (0.02)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)
Level change (*I*)	-0.25 * (0.13)	-0.22 * (0.10)	-0.20 † (0.10)	-0.22 ** (0.08)	-0.17 * (0.08)	-0.20 ** (0.07)
Trend change (T_2)	0.02 (0.03)	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.01)	-0.01 (0.01)	0.00 (0.01)
Sentiment	0.06 (0.08)	0.05 (0.06)	0.07 (0.06)	0.02 (0.04)	0.07 (0.05)	0.05 (0.03)
Daily news	-0.01 † (0.00)	-0.00 † (0.00)	-0.00 † (0.00)	-0.00 * (0.00)	-0.00 * (0.00)	-0.00 * (0.00)
China's news	0.10 (0.25)	0.08 (0.20)	0.01 (0.22)	-0.08 (0.16)	0.04 (0.16)	-0.14 (0.13)
Political news	0.15 (0.43)	0.06 (0.31)	-0.08(0.33)	-0.22 (0.26)	-0.10 (0.25)	-0.18 (0.22)
COVID-19 news	-0.74 ** (0.28)	-0.40 † (0.21)	-0.44 † (0.23)	-0.28 (0.17)	-0.48 ** (0.17)	-0.32 * (0.14)
Followers	0.57 *** (0.10)	0.55 *** (0.10)	0.55 *** (0.10)	0.54 *** (0.09)	0.55 *** (0.09)	0.54 *** (0.09)
Variance of random effects						
Level 2: $\tau_0^2 = \mathrm{Var}(U_{0j})$	1.208	1.163	1.139	1.088	1.163	1.634
Level 1: $\delta^2 = \mathrm{Var}(R_{ij})$	0.387	0.345	0.391	0.343	0.316	0.338
N (Level 1 units)	386	580	556	831	830	1,245
N (Level 2 units)	30	30	30	30	30	30
AIC	864.22	1178.54	1199.90	1627.68	1562.39	2356.71
BIC	911.69	1230.90	1251.75	1684.35	1619.05	2418.23

Note. Unstandardized coefficients with standard errors in parentheses. Full maximum likelihood estimation. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion. Short-term models use the same number of dates for pre- and post-intervention observations. Long-term models involve additional dates.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table C4. Linear Mixed-effects Models Predicting Audience Engagement

	Short term	**Long term**
Fixed effects		
Intercept	3.11 (3.14)	4.03 (3.23)
Time (*T*)	0.01 (0.01)	0.00 (0.01)
Level change (*I*)	-0.29 * (0.13)	-0.29 * (0.12)
Trend change (T_2)	-0.02 (0.01)	0.00 (0.01)
Sentiment	0.08 (0.07)	0.12 † (0.07)
Daily news	-0.01 * (0.00)	-0.00 * (0.00)
China's news	-0.09 (0.32)	-0.44 (0.28)
Political news	-0.09 (0.62)	-0.20 (0.51)
COVID-19 news	-1.17 ** (0.41)	-0.93 ** (0.36)
Followers	0.10 (0.22)	0.05 0.23)
Variance of random effects		
Level 2: τ_0^2= Var(U_{0j})	0.789	0.851
Level 1: δ^2 = Var(R_{ij})	0.548	0.567
N (Level 1 units)	467	703
N (Level 2 units)	13	13
AIC	1119.70	1677.20
BIC	1169.46	1731.86

Note. Unstandardized coefficients with standard errors in parentheses. Full maximum likelihood estimation. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion.

* p < .05, ** p < .01, *** p < .001.

Table C5. Linear Mixed-effects Models Predicting Likes and Retweets

	Likes		**Retweets**	
	Short term	**Long term**	**Short term**	**Long term**
Fixed effects				
Intercept	-4.20 ** (1.23)	-4.23 ** (1.25)	-2.57 * (0.96)	-2.58 * (0.95)
Time (*T*)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Level change (*I*)	-0.19 ** (0.07)	-0.20 *** (0.06)	-0.14 * (0.06)	-0.13 * (0.05)
Trend change (T_2)	-0.01 (0.01)	0.00 (0.00)	0.00 (0.01)	0.01 (0.00)
Sentiment	0.06 (0.04)	0.05 † (0.03)	0.02 (0.03)	0.02(0.03)
Daily news	-0.00 ** (0.00)	-0.00 *** (0.00)	0.00 (0.00)	0.00 (0.00)
China's news	0.05 (0.13)	-0.01 (0.11)	0.08 (0.12)	0.02 (0.09)
Political news	-0.22 (0.23)	-0.21 (0.19)	-0.27 (0.21)	-0.17 (0.17)
COVID-19 news	-0.42 ** (0.14)	-0.32 ** (0.12)	-0.27 * (0.13)	-0.16 (0.11)
Followers	0.59 *** (0.10)	0.60 *** (0.10)	0.37 *** (0.08)	0.38 *** (0.08)
Variance of random effects				
Level 2: $\tau_0^2 = \mathrm{Var}(U_{0j})$	1.274	1.317	0.762	0.753
Level 1: $\delta^2 = \mathrm{Var}(R_{ij})$	0.320	0.343	0.266	0.262
N (Level 1 units)	1,097	1,644	1,097	1,644
N (Level 2 units)	30	30	30	30
AIC	2038.03	3090.38	1822.00	2637.55
BIC	2098.03	3155.24	1882.00	2702.41

Note. Unstandardized coefficients with standard errors in parentheses. Full maximum likelihood estimation. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion.

* p < .05, ** p < .01, *** p < .001.

Table C6. Linear Mixed-effects Models Predicting Non-equivalent Outcomes

	Sentiment	**Daily news**	**China's news**	**Political news**
Fixed effects				
Intercept	-0.47 (0.44)	-0.11 (0.93)	0.49 * (0.24)	0.01 (0.09)
Time (*T*)	0.00 (0.00)	0.01 (0.00)	0.00 (0.00)	0.00 * (0.00)
Level change (*I*)	-0.01 (0.06)	-0.06 (0.06)	0.00 (0.02)	-0.01 (0.01)
Trend change (T_2)	0.00 (0.01)	-0.01 (0.01)	-0.00 † (0.00)	0.00 (0.00)
Daily news	0.00 (0.00)		0.00 (0.00)	0.00 (0.00)
Sentiment		-0.05 † (0.03)	0.04 *** (0.01)	-0.01 * (0.00)
China's news	0.52 *** (0.10)	-0.11 (0.12)		0.03 † (0.02)
Political news	-0.45 * (0.19)	0.24 (0.20)	0.12 * (0.05)	
COVID-19 news	-0.06 (0.12)	-0.02 (0.13)	-0.14 *** (0.03)	0.02(0.02)
Followers	0.03 (0.04)	0.23 ** (0.07)	0.02 (0.02)	0.00 (0.01)
Variance of random effects				
Level 2: $\tau_0^2 = \mathrm{Var}(U_{0j})$	0.153	0.726	0.048	0.006
Level 1: $\delta^2 = \mathrm{Var}(R_{ij})$	0.226	0.250	0.017	0.006
N (Level 1 units)	1,097	1,097	1,097	1,097
N (Level 2 units)	30	30	30	30
AIC	1599.72	1752.06	-1196.16	-2409.27
BIC	1654.72	1807.06	-1141.16	-2354.26

Note. Unstandardized coefficients with standard errors in parentheses. Full maximum likelihood estimation. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion. Daily news is log-transformed values of the number of tweets posted per day by each account.

* $p < .05$, ** $p < .01$, *** $p < .001$.

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