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**NETWORK ANALYSIS OF THE
CHINESE MEDIA ON THE
EVIDENCE FROM THE HONG
KONG PROTEST MOVEMENT**

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NETWORK ANALYSIS OF THE CHINESE MEDIA ON THE EVIDENCE FROM THE HONG KONG PROTEST MOVEMENT

State information policy becomes especially important in times of political crises. The government has not only to solve the problem efficiently, but also preserve its positive image for the audience to restore order, retain its legitimacy and prevent citizens from any harmful collective actions. Media as the main link between the state and the citizens become, thus, one of the main means to solve this political crisis. In this study, the author takes the case of Hong Kong protests in summer-fall 2019 as the example of how state media work in order to resolve the crisis. By creating the network of Chinese media with the SNA method, we analyze how government controls the main information flows and what role local prodemocratic Hong Kong newspapers play in the information network of China. The results of the study show the decisive role of state media in creating the information agenda around Hong Kong protests. Moreover, there is close interconnectivity between Hong Kong media and government newspapers and between Hong Kong media and foreign sources of information, which makes local newspapers an important bridge between Eastern and mainland Chinese political views.

JEL Classification: D85

Keywords: SNA, information policy, crisis management, Chinese media, Hong Kong protests

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Introduction

The information policy of the state is the vital part of its current political course, and it is capable of performing the functions of mobilizing society, legitimizing the current government, shaping the government's information agenda and securitization. Based on the information characteristics and information flows, one can conclude about the features of information policy in order to acquire support both from domestic and foreign audience [Veil, Buehner, Palenchar, 2011]. The ability to control the expectations of the audience through communication between the government and the public becomes especially important in crises, during which the government is expected to respond effectively and timely to the ongoing actions and maintain a stable connection with the audience [Graham, Avery, Park, 2015; Liu, Lai et al., 2018].

How is the information space of China formed in the context of the political crisis of "one country, two systems" idea? Are the Hong Kong media indeed powerful, and are they independent actors in China's information policy? This study provides a basis for finding answers to these questions. The research problem is based on the studies devoted to the analysis of information dissemination among the Chinese audience [Rauchfleisch, Schäfer, 2014; Yang, 2013; Ortega, Wang et al., 2012], as well as the specific features of the information policy of Chinese party media [King, Pan et al., 2013]. In this regard, there is a need for a detailed analysis of how the information is spreading in China in order to solve the regional political crisis, both on the territory of the special administrative region of Hong Kong and in mainland China, as well as how this crisis is covered by traditional Chinese media and local Hong Kong newspapers. Using SNA analysis, we can illustrate the nature of information flows in China on the example of information dissemination about protests in Hong Kong in 2019. We will also be able to make conclusions about who sets the information agenda and how the Chinese and Hong Kong media are interconnected in the context of information policy in China.

The multiplicity of the subject field is substantiated, on the one hand, by the specifics of the information dissemination in China in the face of the need to resolve the regional political crisis by maintaining government control over the national media, and, on the other hand, by the partial autonomy of local Hong Kong media. A number of studies argue that the Chinese media are controlled by the Communist Party. Moreover, the specific features of Internet regulation in China leave almost no room for the manifestation of opposition views and ideas in the information space [Esarey, 2006; King, Pan et al., 2013]. At the same time however, the pro-Hong Kong media form and represent pro-democratic ideas in the information space of China. We formulate the research problem as

the information dissemination in China in the context of the political crisis with a focus on the Hong Kong protests in the summer-winter of 2019. The structure of the information space, the distribution of roles between pro-Beijing and pro-Hong Kong media and the identification of key actors among officially registered Chinese media expand the subject field of information policy research.

The purpose of our study is to identify the main features of the Chinese media information policy on the evidence from the protests coverage in Hong Kong in 2019 and assess the role of this policy in informing the audience of Hong Kong and the rest of China. Accordingly, in the course of work, we set ourselves the following tasks:

- identify the key actors (media) of China's information policy and their network characteristics / structure;
- analyze how the information about Hong Kong protests is spread in China through the media;
- describe and analyze the network structure of the Chinese media during the research;
- identify the main processes that lead to the organization of such a structure (the logic of building information flows between individual media outlets in China).

As the main research method, I will use SNA analysis to identify the main patterns of media information flows in China. This method is traditionally used to identify the structural features of communication patterns between actors both at the micro level and at the level of organizations, states, etc. [Wasserman, Faust, 1994; Barnett, Xu et al., 2017]. According to the results of the study, it will be possible to conclude, firstly, which media outlets create the information agenda that is subsequently transmitted to other media using centrality characteristics [Freeman, 1979]. Second, the use of network analysis will allow us to get an idea of the level of media homogeneity in China, since the level of clustering of network objects reflects political divisions in society and the media [Kim, Barnett et al., 2010; Himelboim, McCreery et al., 2013; Gruzd, Roy, 2014]. Accordingly, the main *research question* can be formulated as follows: What actors (media) play a leading role in shaping China's information policy in the context of the Hong Kong protests?

Additional Research question 1: What role do the pro-Hong Kong media play in China's information space in the context of Hong Kong 2019 protests?

Additional Research Question 2: What is the structure of the relationship between pro-Beijing and pro-Hong Kong media in China?

When analyzing China's information policy sphere, the researchers agree that the information agenda in the media is set first of all by the newspapers and agencies under

the direct control of the Communist Party of China [Gill, 2020; King, Pan et al., 2013]. Nevertheless, as far as the administrative district of Hong Kong has its own local media, which have different political position from the party rhetoric due to the relative political autonomy of Hong Kong and the commercial basis of some of these media, we can assume that there is a separate cluster of Hong Kong media focused on a pro-democratic audience and not associated with the party press. Based on the above, we can formulate the following working hypotheses:

H1. *Pro-Beijing media are the most cited ones in the context of the Hong Kong protests and, therefore, have the greatest influence on shaping the information agenda in China in the context of resolving the regional crisis.*

We expect that the pro-Beijing media will dominate the information space, and therefore, their centrality degrees will be maximal. The majority of interactions will occur between the pro-Beijing media.

H2. *The media network structure illustrates the strong polarization of pro-Beijing and pro-Hong Kong actors in China's information space.*

We expect that China's media will form two clusters of actors (pro-Beijing media and pro-Hong Kong media) with distinct features in the network. Moreover, pro-Hong Kong media will have more connections with foreign actors as they reflect a pro-democratic media agenda.

H3. *The main newspaper of the Chinese Communist Party (hereinafter referred to as the CPC) People's Daily acts as an information hub (in terms of betweenness centrality and closeness centrality) in the network of Chinese media.*

We expect that the most important information actor in China (*People's Daily*) will act as a link in the entire information network of China. In other words, the actor's network characteristics should "bind" (in fact, play the role of "bridge") various media clusters in the information space in relation to the protests in Hong Kong.

To confirm or reject the formulated hypotheses, let's move on to describing the theoretical part of our research, on the basis of which we can build and analyze the network structure of the media.

Previous research on Chinese information space

Conceptualizing information policy

Information policy is inextricably linked with the political activity of actors, since it affects all spheres of society, which can be seen especially clearly with the development of

new communication technologies and the emergence of new actors in information policy [Jaeger, 2007; Bimber, 2003]. Consequently, it became necessary to resolve the question of the nature of state information policy: being potentially democratic, Internet environment became regulated in a number of countries through information control and censorship. China was not an exception [King, Pan et al., 2013; Unver, 2017; Hassard, Sheehan et al., 2007].

In order to form the effective information agenda, measures of information control by the state over the audience were in various forms and for different purposes. Here, such methods of forming information policy should be noted, as state control over national media, censorship in social networks [King, Pan et al., 2003], transformation of information content from abroad by national media for domestic audience [Gill, Jacobson, 2017], a high degree of interconnectedness of national media, which form a network of mutual citations to prevent penetration and propagation of undesirable information [Esarey, 2006] and technical barriers to the penetration of alternative sources of information into the national information space [Shim, Shin, 2019]. Thus, information policy is the main intermediate link between national policy and the ideological course of the current government and its political institutions, which establish the rules of political actions and citizens' attitude [Plott, 1979], and the citizens themselves; they are, in turn, the foundation of the regime legitimacy and the main audience, that perceives and absorbs the ideological course of the government.

However, since China is not uniform in the political management due to relative political autonomy of Hong Kong and autonomous regions of Taiwan and Macao, we assume that the information policy of the center will be different from the information flows at the "periphery", i.e. in the Hong Kong. In particular, it is especially important to analyze the information coverage of the recent clash between the politics of the center and the periphery - the protests in Hong Kong in summer of 2019 as the example of information agenda by state media and local media in order to regulate the political attitudes of Chinese (mainland) and Hong Kong audience and maintain the stability of the regime.

Chinese information space and information policy of Chinese media

When analyzing the information space and the dynamics of reforms initiated by modern Chinese leadership in the media sphere, the researchers divide, as a rule, into two groups. The first group assesses the efforts of China to democratize the information sphere and weaken the strict state control over the information space of the PRC positively

[Achavan-Machid, 2004; Singh, 2012]. On the contrary, European and American researchers are inclined to assert about an extremely negative situation with people's rights and freedoms in the information space, observing a noticeable increase in state control over society since Xi Jinping came to power [Esarey, 2006; Freedom of the press: China, 2017; Gill, Jacobson, 2017]. The aforementioned contradictions are connected, in my opinion, with two stable trends in the information space of modern China - firstly, with the development of the informal, digital sphere of communication for individuals, which is potentially democratic in its nature and, therefore, most difficult to be controlled by the authorities. It should be noted, however, that, despite the fact that we consider this to be a democratic step, recent studies demonstrate that such environment can also be a distinct element of power strengthening, where digitalization acts as an additional channel of legitimation and strengthening of state power [Bailard, 2012; King, Pan et al., 2013; Christensen, 2019]. As a second trend, China's recent policy on the intensification of the "soft power" policy, aimed at both the international community and their own citizens, should also be taken for consideration, and expressed, according to the researchers, in the creation of an attractive image of party officials and the head of state, which in itself is the basis for strengthening censorship and state control of the media and social networks [Stockmann, 2012; Gill, Jacobson, 2017; Gill, 2020; Esarey, 2006]. In addition, according to a number of sources, there is a reason to believe that China is setting up artificial barriers to the dissemination of information that potentially opposes the CCP and can create risks for government legitimacy. These methods include both the use of traditional methods of control over the information sphere - censorship in the media and social networks [King, Pan et al., 2013], blocking unwanted information coming from abroad in the Internet [Gill, Jacobson, 2017], raising access barriers by tightening the rules of media licensing and direct guidance of the Department of propaganda of the CC CPC on the formation of the information agenda by pro-Beijing Chinese media [Shim, Shin, 2019], and informal methods, such as informal encouragements of the loyalty of newspaper managers and editors with cash bonuses and gifts [Singh, 2012]. Considering these arguments, as well as the fact that the reduction of government funding of the main print media in China has led to their partial commercialization and greater freedom of expression, we can conclude that, despite certain shifts in China's information policy towards partial freedom of expression of the media and in social networks in comparison with the period of Hu Jintao, the information space, with the relative growth of self-expression of individuals, is still under the strict

control of the authorities on issues directly related to the stability of power and party position.

Traditionally, researchers attribute party and government information policy to the authoritarian, or party-state model [Luo, 2015]. The Chinese government restricts the activities of the media, including television, to have a pro-Western or oppositional rhetoric, by establishing restrictions on the licensing [Shim, Shin, 2019] and imposing active censorship policy in the sphere of Internet technologies [King, Pan et al., 2013]. However, in the study of censorship in China, held in 2013, the researchers came to the conclusion that censorship was exposed not on the users' posts that criticize the party, but only on those that were able to trigger collective action, thereby causing risks for social and political stability [King, Pan et al., 2013]. In this regard, it is especially indicative to examine China's information policy in the context of the protests in Hong Kong since the summer of 2019 as an event that in itself provokes collective action against the party leadership.

The focus of this research is the study of China's information policy in light of the Hong Kong protest movement that has entered into the active phase in June 2019 and lasted with little attenuation until the spring of 2020. The substantial reason for the demonstrations and the ensuing riots was a bill that would allow local authorities to detain and extradite individuals in territories with which Hong Kong does not have a direct extradition agreement - that is, mainland China. The protests against the bill, which, according to the Hong Kong population, would lead to the immediate loss of the region's autonomy and established jurisdiction, were not new - for example, the demonstrations of citizens in Hong Kong in the summer of 2014 demanding the introduction of universal suffrage and the establishment of democratic freedoms, as well as a number of protests and demonstrations in the period from 2015 to 2019. Thus, it allows us to speak about the representativeness of the 2019 case as an example of a local political crisis along the line "Beijing - Hong Kong" [Sum, 2019].

The case of the 2019 Hong Kong protests was selected for this study for a number of reasons. First of all, the Hong Kong case is the example of "crisis management" policy, where we need to analyze how China's information policy contributes to the formation of the political agenda that ensures the stability of central and regional authorities and maintains a positive image of the party in the eyes of citizens. The crisis management studies are directly linked with the theory of attribution, or to a problem of perception and interpretation of social behavior. However, instead of individual actors, crisis-management theory considers the entire organization to implement psychological tools

(denial, threats, apologies, information silencing, etc.) in order to preserve its own image in the event of crises of any type, be it natural phenomena (for example, hurricanes, typhoons, tsunamis, etc.) or phenomena in which the human factor is predominant (political crises, terrorist attacks, protests, revolutions, etc.) [Coombs, 1995; Barton, 1993; Pearson, Mitroff, 1993; Russ, 1991]. In this regard, the 2019 protests can be considered as the substantial crisis that needed to be resolved by both regional authorities and the government in order to overcome political instability in the region and reduce the risks of collective action by citizens in other regions of China.

Crisis management researchers have developed a number of strategies to help the actor(s) overcome the crisis by taking a number of measures that are most appropriate for the current situation, dividing them into five groups of strategies - denial, distancing, praise, threats and "sacrifice", that is, creating an image of a martyr [Barton, 1993; Brummelt, 1980]. Various characteristics of crises lead to government coverage of certain aspects of the problem, including simple public awareness, information campaigns on psychological assessment of the event and persons identified as the main culprits, etc. Thus, the results of the study in one of the latest works devoted to applied research of crisis management, showed that the informational message was predominant among other mechanisms during the crisis of Hurricane Harvey in Texas in 2017, while the ideological function faded into the background due to the foremost need to solve supply problems, establish infrastructure, evacuate citizens, etc. [Liu, Lai et al., 2018]. In this regard, the study of the reflection of Hong Kong protests in the media is of research interest, since the political background of the protests, in contrast to the previous study, makes the ideological interpretation of current events no less important than the informative function of the media. The online analysis of the Chinese media will thus help analyze how information about the protests in Hong Kong and mainland China is disseminated, as well as how the events are covered in the pro-Beijing and opposition media.

The conclusion with the focus of current research is the information policy in China in the context of the protest movement as an example of crisis management policy that addresses short-term problems of the local political crisis. In other words, the results of this study cannot be extrapolated to the information policy of China as a whole, since the event covered by the pro-Beijing and pro-Hong Kong press is in itself anomalous, that is, being outside the framework of China's information policy as a long-term phenomenon. We only assume here, that this example of information aspect of crisis management is an example of information policy intensification due to the need for a

quicker and more effective solution to the problem and due to the urgent need to ensure stability and order in the region with significant political and information autonomy. Therefore, the comparison of current case with earlier or later examples of protest activity in Hong Kong is assumed in the further development of this scientific problem, which is beyond the scope of this study.

SNA application for information space and information policy analysis

Network analysis is a widespread method for analyzing the relationship of actors in a single network on the basis of their information interaction, where both individuals and governments, as well as mass media, can act as actors; a lot of scientific literature concerns this method of empirical analysis [Chang, Himelboim, Dong, 2009; Kim, Barnett, 2000; Kim, Barnett, 2007; Rosen, Barnett, Kim, 2011; Segev, Sheaffer, Shenhav, 2013; Park, Barnett, Chung, 2011]. The information space serves here as an example of information policy and the main instrument for achieving the strategic objectives of the main players, including state governments, which helps to form and regulate the information agenda. Despite the fact that most latest studies focus on the research of the Internet space, the communication of users in social networks and the ways of organizing and functioning of online communities [Graham et al., 2013; Sunstein et al., 2002], it seems equally important to analyze the centralized information policy of the state in the Internet space as a representative example of information flows regulation aimed at organizing specific political content for the audience. Network analysis, thus, is the appropriate method of analysis, since we can analyze the formation of an information network with a certain ideological signal aimed at audience and, based on the data obtained, assess the degree of its fragmentation. From this point of view, it is worth considering the information network of print media as an example of a crisis management policy to resolve the local political crisis in Hong Kong in the summer-winter of 2019. We assume that the structure of the network within the specified period will vary significantly from long calm periods of “center - periphery” information policy, and that the media interaction will be more intense and aggressive due to the need for an immediate solution of the crisis. Therefore, we assume that this case shows the example of crisis solving policy, but it is representative of China's information policy as a whole. Nevertheless, further development of a scientific problem, including the study of the dynamics of information processes, as well as the comparison of media information policy on the Hong Kong crisis with other more peaceful issues, will help to resolve a number of restrictions indicated in this work.

The SNA method will help us analyze the information flow network in four aspects. First, with the help of degree centrality, we will be able to assess the intensity of interaction of Chinese media outlets with each other and with foreign media by analyzing the intensity and volume of citations. The analysis of actor closeness centrality of the constructed network allows us to conclude about the clusterization level of the Chinese

media and to what extent one or another source of information interacts with other media [Balevas, 1950]. The indicator of betweenness centrality will allow us to assess the importance of certain media as a connecting link between multiple media clusters in China [Linton, 1977]. Finally, on the basis of eigenvector centrality we can draw a conclusion about the importance of concrete media in the formation of an information agenda concerning protests in Hong Kong [Newman, 2006]. Proceeding from the scientific hypotheses formulated in the first part of the work, we assume that the main source of shaping the information agenda in China will be the party newspaper *Renmin Ribao*, or *People's Daily*, since it is the Beijing government that is interested in resolving the conflict of political protests in Hong Kong, which means that there is a high probability of building a direct dialogue between the government and the audience through *People's Daily*. We also assume that the Hong Kong media will represent ideological opposition to the “center” media due to the region's relative political autonomy and media autonomy from the direct directives of the PRC General Directorate of Press and Publications, thus, forming a separate media cluster in the resulting network. Further network building and the analysis of the centrality results obtained will help us reject or confirm the hypotheses we have formulated.

Data collection and network building

Since the basis of the information policy, as it has been described above, is the creation and dissemination of information through the media that form information network covering the main audience, the network analysis of the media is justified by plethora of studies of the main information policy patterns. Therefore, it is especially important to use this method in China's information space analysis in the context of crisis management, related to information regulation of political protests in Hong Kong in the summer-winter of 2019. Media interaction within the context of the crisis management policy can be clearly presented with the help of network analysis with Chinese media quotations as units of measurement.

Since the period of protests was relatively short in comparison with the information policy of China in certain sectors (education, medicine, and so on), we have decided to analyze the six months' period as a time unit during which open protests in Hong Kong took place. To conduct a network analysis of the information policy of the Chinese media, we collected data from June 12, 2019, that is, directly from the beginning of active protests in Hong Kong, to December 12, 2019; after that, we transformed the data obtained into the adjacency matrix.

We filled the matrix with the number of quotations by one media outlet of another in the context of events coverage in Hong Kong during the specified period. In the course of our study, we analyzed the websites of major Chinese newspapers, both pro-Beijing and pro-democracy Hong Kong ones. The data for network analysis were collected primarily from media articles with the largest coverage in China and Hong Kong, according

to the independent ratings [World Press Trends Database, 2016]. The data were collected according to the snowball principle, based on quotations of newspapers and news agencies in the specified media. Specifically, by taking as original sources of information *People's Daily*, *Xinhua*, *Global Times* and others, we counted the number of references to other print media by these newspapers, after which new media have also been added to the matrix and their articles were analyzed in search for new media quotations, etc.

In general, in the period from 12 June till 12 December 2019 we have collected quotations of 16 Chinese pro-government newspapers, 9 major local Hong Kong newspapers and 18 foreign newspapers and news agencies referred to the Chinese media in the context of Hong Kong events. Table 1 shows a fragment of the citation matrix for the specified period, where pro-government newspapers are marked in red, Hong Kong newspapers are marked in yellow (geographically, regardless of political views), and foreign media mentioned by the Chinese press are marked in blue. As for the nature of news, which were analyzed in the course of the current study in order to build the matrix and the networks, we took in consideration only the news that concerned the description of the protests as such, as well as Chinese political statements and heads of states in relation to the protests in Hong Kong. We also analyzed news articles that mentioned pro-government actions aimed at creating a positive image of local police and government in Hong Kong, as well as articles that analyzed the possible role of foreign states in fomenting protests in the region, which turned out to be a common way for the Chinese government to create ideological “bubble” around the audience in order to activate the policy of crisis management. Further expansion of the subject will undoubtedly be taken into account in the following studies.

All calculations in the course of the current research work were carried out using the free software environment for statistical computing *R* [r-project]. The main elements of the network are the vectors of citations from one print media to another, presented in matrix form in the adjacency table. To build the network, we used directed graph to state the relationship between Chinese media more accurately. The node size of each media was adjusted based on the volume of citations of this newspaper by other sources. These settings helped us assess the power of each media in the constructed network, as well as the nature of the relationship between individual media. In particular, the results of the study showed that one of the main media that forms the political agenda regarding the protests in Hong Kong is “Xinhua News”, as it had a huge number of citations by other media, but at the same time it gained access to the information directly from the party representatives and regional government without the need to quote other media. Consequently, the use of non-directed graphs would deprive the analysis of networks of a significant degree of objectivity, since in this way we could only trace the intensity of media interaction with each other without further analysis of the direction of information flows.

Tab.1. The fragment of citation matrix for the period of 12 June – 12 December Hong Kong protests

12 June 2019 - 12 December 2019	Global Times	Xinhua	The Paper	China News	CCTV	Renmin Ribao	Junbao Jizhe (Military Reporter)	Guang Ming Daily
Global Times		196	19	28	166	73	4	7
Xinhua	0		0	0	0	0	0	0
The Paper	0	38		0	0	0	0	0
China News	10	61	0		43	34	0	10
CCTV								
Renmin Ribao	5	167	0	0	5		0	0
Junbao Jizhe (Military Reporter)	0	93	0	0	0	84		0
Guang Ming Daily	0	16	0	31	0	0	0	
China Youth Daily	0	47	0	0	35	53	0	0
International Sharp Review								
China Focus	48	0	0	0	45	0	0	0
China Women's News	0	40	0	0	0	67	0	0
Haiwai Wang (People's Daily)	0	59	0	0	0	101	0	0
China Daily	0	0	0	0	0	5	0	0
South China Morning Post	16	15	0	0	16	13	0	0

The focus of our research is the analysis of the four centrality indicators in the constructed network - degree centrality, actor closeness centrality, betweenness centrality and the eigenvector centrality, based on which we will be able to draw a conclusion about who sets the information agenda among these media in the context of the protests in Hong Kong, how individual media are interconnected and, no less important, certain types of actors - Chinese, Hong Kong media and foreign press, which will be described in details during the analysis of the obtained results. In the course of building the network, we excluded self-citation, since we are primarily interested in the intensity of interaction between various media. It is also worth noting that, although we also assess the citations of foreign media by Chinese newspapers, we cannot be absolutely sure about the actual influence of foreign media on the Chinese audience. If the Chinese media cited, for example, the information agency *Reuters* on the Hong Kong issue, we cannot state whether Chinese read *Reuters* as well as *the Global Times*, which links to the foreign media in our case. Therefore, we can only carry out the comparative analysis of the obtained networks, taking into account the citations of the Chinese press by foreign media and without it, while reserving the development of this problem for further research.

The results of the constructed networks for the period from 12 June to 12 December 2019 are presented the *Figure. 1, 2, 3 and 4* respectively. *Table 2* is a table of network centralities, where deep red color indicates the media with the largest centrality indicators, in red - a little smaller centralities, and in yellow - other indicators of media that stand out from the whole sample, but do not occupy top positions. In this regard, the obtained indicator of degree centrality will allow us to analyze quantitatively the volume of mutual citation by the media, actor closeness centrality and betweenness centrality will

show the level of clusterisation of network actors , as well as the role of each media as an information bridge between different media groups, while the eigenvector centrality will allow us to evaluate the impact of specific media in the whole information network [Wasserman, 1994; Barnett, Xu et al., 2017; Park et al., 2018; Linton, 1977].

The next part of the chapter will provide a detailed analysis of the obtained centrality indicators and the media playing a leading role in shaping the information agenda regarding the protests in Hong Kong in the context of crisis management policy in China.

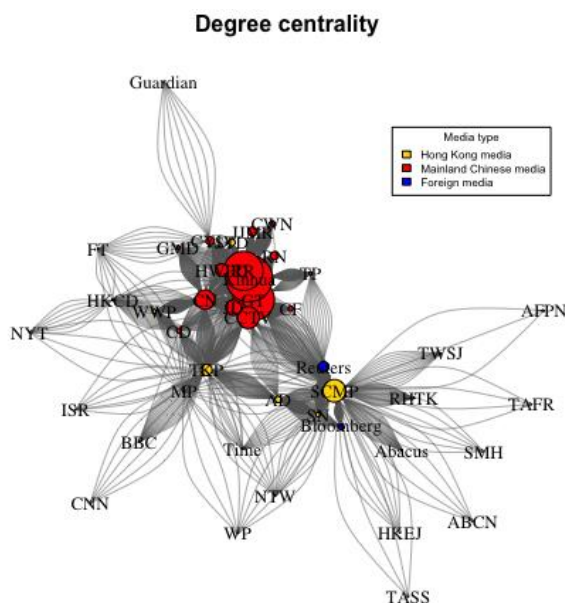


Fig. 1. Degree centrality of the Chinese media network.

Analysis of Chinese media information space

In the first part of the work, when formulating the hypotheses, we relied on the assumption that the pro-communist press is dominant in the information space of modern China in the context of the Hong Kong protests crisis management. This assumption is due to the specific features of control over the media by the Propaganda Department of the Central Committee of the Communist Party of China, which was described in the previous part of the work. First of all, in accordance with the crisis management theory, we assumed that the central government, being interested in the quickest solution of the Hong Kong problem, seeks all forces to stop the further spread of the political conflict in the information space to save its own legitimacy and suppress the proliferation risks of opposition sentiment in the mainland part of China [Barton, 1993; Brummelt, 1980]. These intentions are put into practice through media in a variety of ways - partial silencing, shifting the focus from the protests to cultural activities and military exercises organized in the region and in other provinces of China, denial of information that could potentially undermine the legitimacy of the current government, and criticism of the media which represent the alternative point of view.

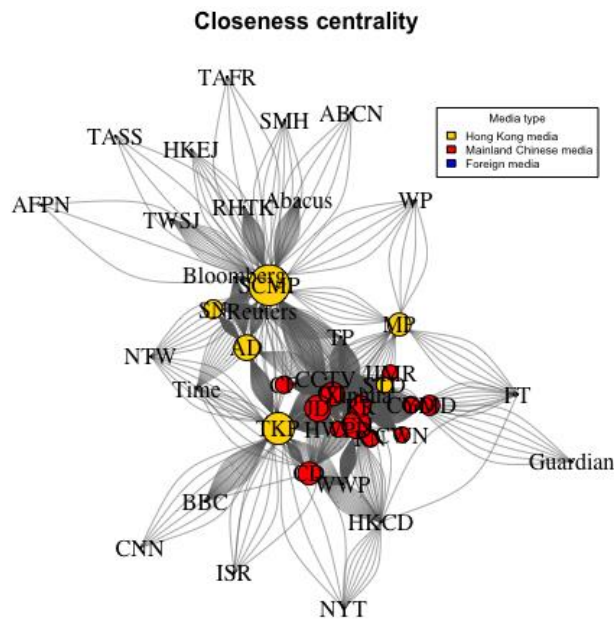


Fig. 2. Actor closeness centrality of the Chinese media network.

First, in the course of our work we make the potential assumption that the major media in China are under the control of the Communist Party, and therefore, a certain part of the information space with pro-Beijing media can be considered as directly controlled by the PRC government. Despite the fact that we have no direct evidence of the direct control of the Communist Party over the media, as the official directives of the Department of propaganda of the CPC cannot be found in the free access, we, however, tend to assume the correctness of our position on the basis of previous research papers and international reports. In particular, Jonathan Hassid in his work argues about the effectiveness of the Propaganda Department of the CPC Central Committee on the example of economy of scale and the ability to control the media through unofficial channels, like financially rewarding newspaper editors or refusing to give job approvals and licenses or promotion to reporters who stated a position different from Beijing's [Hassid, 2008]. Based on this assumption, we formulated hypothesis **H1** about the leading centrality of the main pro-Beijing newspapers in the context of the recent protests in Hong Kong.

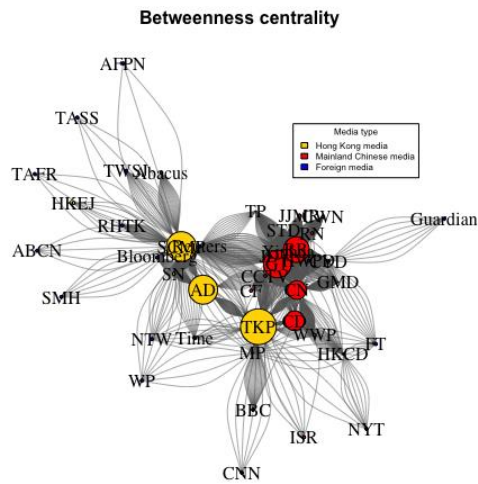


Fig. 3. Betweenness centrality of the Chinese media network.

As a logical consequence of the first hypothesis about the dominance of pro-government media in the information space of China, as well as taking into account the theoretical assumption of the political autonomy of pro-Hong Kong regional media, we assumed that in the resulting network there would be a division of the media into two distinct clusters based on regional and political criteria: in particular, we expect the formation of two distinct clusters of media – of pro-Beijing and pro-Hong Kong orientation, which are quite isolated one from the other. Consequently, we assume that Hong Kong media have intense ties with foreign media, because they are more focused on pro-democracy agenda. These assumptions were reflected in hypothesis **H2**.

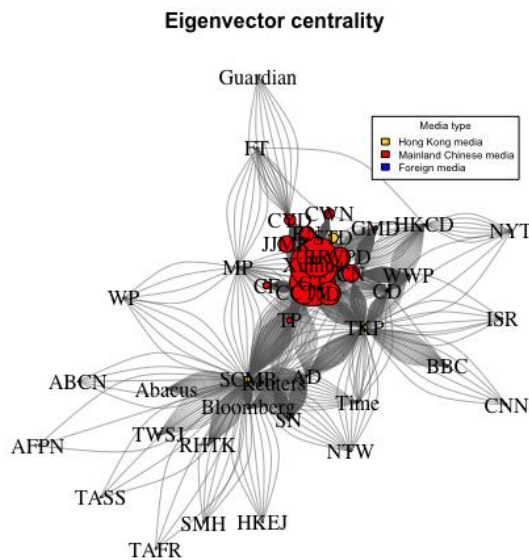


Fig. 4. Eigenvector centrality of the Chinese media network.

Finally, when analyzing the information space of China in the context of the constructed network, it is of crucial importance to mention the power uncertainty theory, which was designed by Michel Crozier [2009] and used in a number of works on

contemporary media in China [Hassid, 2008; Salancik, Pfeffer, 1978; Esarey, 2006]. Within the context of China's information policy this theory expects that the main force of pressure on the media by the party apparatus is carried out based on the factor of uncertainty – that is, newspapers do not assume what will be the certain action of the authorities in different cases, which gives them fear and, thereby, reduces the risks of opposition tendencies in press. Consequently, each particular means of mass information will strive to be as closer to the party authorities' position as possible, in order to reduce uncertainty and consolidate its own stability in the information space. This, as well as the CPC's desire for control over the information space, can explain the formation of large media conglomerates from smaller media outlets, which, on the one hand, facilitates the information policy of the center, and on the other hand, gives the media greater possibility of getting closer to the center in order to reduce uncertainty and increase government support. Therefore, we assume in hypothesis **H3** that the main information hub (bridge) of the Chinese media in the constructed network will be the main pro-Beijing party newspaper *People's Daily* as the most influential and powerful source of information close to the authorities.

Tab. 2. The list of centrality indicators for each media represented in the network

Media Abbreviation	Media	Degree Centrality	Closeness Centrality	Betweenness Centrality	Eigenvector Centrality
GT	Global Times	806	0,0088	224,5561	0,9569
Xinhua	Xinhua	905	0,0006	0	1
TP	The Paper	68	0,0006	4,3418	0,1177
CN	China News	377	0,0106	152,6498	0,3612
CCTV	CCTV	424	0,0006	0	0,4675
RR	Renmin Ribao	759	0,0078	209,6416	0,8353
JJMR	Junbao Jizhe (Military Reporter)	181	0,006	0	0,3468
GMD	Guang Ming Daily	68	0,0075	0,6282	0,0796
CYD	China Youth Daily	160	0,0062	23,1375	0,2348
ISR	International Sharp Review	7	0,0006	0	0,0053
CF	China Focus	97	0,0065	0	0,147
CWN	China Women's News	110	0,006	0	0,2052
HWPD	Haiwai Wang (People's Daily)	245	0,006	0	0,4149
CD	China Daily	96	0,0086	160,2714	0,0659
SCMP	South China Morning Post	439	0,0154	241,9049	0,1259
Reuters	Reuters	204	0,0006	0	0,0439
Bloomberg	Bloomberg	111	0,0006	0	0,0244
AD	Apple Daily	124	0,0096	235,9049	0,0284
AFP	AFP News agency (France)	3	0,0006	0	0,0008

JD	Jiefang Daily	308	0,0099	1,5297	0,4877
TKP	Ta Kung Pao	220	0,012	291,4349	0,1239
Time	Times	19	0,0006	0	0,0043
SN	Stand News	91	0,007	0	0,0091

The degree centrality analysis is used in studies to assess the extent of interaction with other participant actors/groups in the network [Zhong, Pajouh et al., 2020; Yustiawan, Maharani et al., 2015]. Since in this study we are constructing general degree centrality without breaking down into indegree and outdegree measures, it makes sense to evaluate in this aspect the intensity of interaction between network actors. A large indicator of degree centrality shows, thus, potentially powerful actors that influence the formation of information agenda within the framework of the network [Zhong, Pajouh et al., 2020].

The results of degree centrality indicators are listed in Table 2. The table shows that the pro-Beijing newspapers *Xinhua*, *the Global Times* and *the People's Daily*, with the values of 905, 806 and 759 respectively, are the undisputed leaders in the number of interactions with other media. It is worth noting though, that all these three media outlets are the largest representatives of the Chinese press. For example, the *Xinhua* newspaper is the largest printed newspaper of the *Xinhua* news agency, one of the two state news agencies of the People's Republic of China, with a circulation of 3 million prints. *Xinhua* is focused primarily on the coverage of political, economic and social changes in China and abroad, thus, being the chief representative of China abroad [*Xinhua* Official Website]. At the same time, in the context of the Hong Kong protests coverage, we can note that the citation of *Xinhua* was one-sided: while most of the media listed on the network relied on the information published by this paper, the newspaper itself did not make a single citation for six months' period regarding protests in Hong Kong. Due to its high status, *Xinhua* has access to the feedback from the regional authorities representatives of Hong Kong, as well as to the information of foreign representatives; it is, therefore, the leader in the formation of information agenda regarding protests in Hong Kong.

The third top major pro-Beijing newspaper in terms of interaction with other media is the *Global Times*, which is a structural division of *People's Daily*, and it specializes in covering international events. A number of sources believe, that the position of the *Global Times* is significantly different in some cases from the position of *People's Daily* and that in general this newspaper is more liberal; however, it cannot be denied that it is a means of Beijing's "soft power" not only for domestic audience, but also for foreign readers [Duzhe, 2001].

It is worth noting that all three above-mentioned media have the largest eigenvector centralities with values of 1 of *Xinhua*, 0.96 of *Global Times*, and 0.84 of *People's Daily*. We can also notice that the top ten values of eigenvector centrality are occupied by pro-Beijing media - *Jiefang Daily*, *Haiwai Wang*, China Central Television (CCTV) and *China News*, as well as pro-

Beijing media *Junbao Jizhe*, aimed at narrower audience and devoted to military subjects, and *China Youth Daily*, which is the official newspaper of the Chinese Communist Youth League. The only exception is the independent Hong Kong newspaper *Sing Tao Daily*, which until 1980s supported the Taiwan government (the Kuomintang party) and is not under the direct control of Beijing. Despite the fact that we consider it as neutral media in the context of the Hong Kong protests, some sources suspect that it is informally controlled by Beijing, because it bypasses topics that could damage Beijing's reputation or cause criticism from the audience on sensitive internal issues [Duzhe, 2001]. Taking into consideration this assumption, as well as the fact that *the Sing Tao Daily* is so close to the Beijing cluster that it can be considered a part of it, we can assume that there is ideological vicinity of the newspaper with the "center" in the context of the Hong Kong protests.

It is, therefore, logical to assume that, in accordance with the theory of the "power of uncertainty", not only pro-Beijing, but also regional media will be careful in their statements regarding criticism of Beijing, unless they work on a completely commercial basis - there are only two Hong Kong media outlets in our network that are fully commercial, *Ming Pao* and *Apple Daily*. Thus, based on the obtained indicators of degree and eigenvector centralities, we are inclined to confirm our hypothesis, formulated in the first part of the work, that pro-Beijing media will dominate the information space, exerting the greatest influence on the formation of the information agenda in China in the context of solving the regional crisis. Thus, *hypothesis H1 about the dominance of the pro-government media in covering the protests in Hong Kong was confirmed.*

Turning to the hypothesis that strong polarization of pro-Beijing and pro-Hong Kong media is observed in the network structure in the form of two opposing clusters, it should be noted that the visualization of the constructed network at first glance serves as the evidence against the hypothesis, since, while the Beijing media form a single powerful cluster, Hong Kong newspapers are scattered across the network at approximately the same distance from each other, and the volume of mutual citations is not as great as that of pro-government newspapers (Fig. 1, 2, 3). In addition, both pro-Beijing newspapers and regional newspapers actively interact with foreign media. The low rate of Hong Kong newspapers cross-citation can be partly explained by the fact that, since regional media are located directly in Hong Kong during the protests, they transmit information directly from the scene without the need to cite other regional newspapers [*Ta Kung Pao*, 2019a]. The second explanation also lies in the diversity of political attitudes of the Hong Kong media, in contrast to the pro-Beijing publications: as mentioned above, there are both pro-government Hong Kong media and pro-democratic ones operating on a commercial basis, which is why their positions not only coincide, but often come into conflict with each other, which is directly reflected on the pages of the newspapers [*Ta Kung Pao*, 2019b]. Thus, the absence

of a distinct cluster of the Hong Kong media, as opposed to the Beijing media, becomes clear when analyzing their political attitudes and ties with Beijing.

Despite the fact that the Hong Kong media do not form a separate cluster similar to the pro-Beijing one, we can still note significant intensity of connections between regional newspapers in all four graphs (Fig. 1,2,3,4). Thus, the expected effect of polarization of two media clusters was not observed in the obtained network, based on which we can only *partially confirm the H2 hypothesis* about the existence of polarization of the pro-Beijing and Hong Kong media.

High indicators of Hong Kong newspapers in terms of actor closeness and betweenness centralities show a high degree of interaction between the Hong Kong media with each other, as well as with pro-Beijing cluster and foreign media. This allows us to say that the Hong Kong media of neutral and pro-democratic orientation - primarily *Apple Daily*, *South China Morning Post* and *Ta Kung Pao* - serve as the information hub in the network media structure. Specifically, large Hong Kong newspaper *South China Morning Post* has the highest values of actor closeness and betweenness centrality - 241.9 and 0.154, respectively. This media outlet is not directly under the control of Beijing and the Propaganda Department of the CPC Central Committee. However, we can conclude that the *South China Morning Post*, while being formally a politically neutral newspaper, can be controlled by Beijing, as its owner is Alibaba Group, whose founder, Jack Ma, according to *People's Daily*, has been a member of the Chinese Communist Party since 2018 [*Renmin Ribao*, 2018]. This may explain its distinct restraint regarding the protests in Hong Kong: due to fear of sanctions from the center, journalists of the *South China Morning Post* do not call for Hong Kong residents to join the protest movement, but unobtrusively, in order not to push away the local audience, call for ending violence on the streets by warning of violence by the police towards the citizens [Siu, Lau, 2019; Lau et al., 2019]. To sum up, we can conclude that the *South China Morning Post* takes a restrained neutral stance on political protests, which is explained by Beijing's control, which has the ability to restrict radical statements, as well as by Hong Kong's largely pro-democratic audience, which allows this media to occupy an intermediate position in the network. We believe that these features of the information policy of *South China Morning Post* allows it act as a mediator between different media clusters, which was a surprising finding in this research. Thus, we *reject our hypothesis H3* that *People's Daily* acts as the main link, or the information hub, between all media.

Thus, based on the analysis of the network, we can confirm hypothesis **H1** about the dominance of pro-Beijing media in the information space of China in the context of crisis management of the Hong Kong protests in summer-winter 2019, partially confirm hypothesis **H2** about the polarization of regional Hong Kong media and pro-government newspapers, and reject the **H3** hypothesis of *People's Daily* as the main information hub, since the Hong Kong newspaper *South China Morning Post* performs this function.

Conclusion

This work is devoted to the analysis of the information space of modern China in the context of crisis management policy by the central government in the light of the protest movement in Hong Kong in the summer-winter of 2019. In the course of our work, we analyzed the specific features of the information policy of China and the information space as such, providing the characteristics of the main newspapers that form the information agenda for the domestic audience. We also built the network of information flows of the main print media of the pro-Beijing orientation, the Hong Kong press and foreign media to highlight the main patterns of the features of China's information space in the aspect of regulating protest activity.

The scientific novelty of this study is supported by the fact that we managed to obtain empirical results of specific features of China's information space structure (official media) by the network analysis method, since earlier studies have either claimed the absolute control by central government over the information space, without taking into account features of the political autonomy of the information policy of the Hong Kong media, or asserted the full political and informational autonomy of the media in Hong Kong and Taiwan [Esarey, 2006; Singh, 2012]. The results of the study, however, reveal that, with the control of the predominant part of information space by Beijing, that formulates the information agenda in the context of crisis management in Hong Kong, there are a number of pro-democratic Hong Kong newspapers that play a vital role as a link between the international information space and domestic center policy, which is quite isolated from the outside.

In the course of network analysis, it was found that the pro-Beijing media do really form the information agenda in China in the context of protests regulation, being the dominant nodes of the network, as we assumed at the beginning of the work. While there is the presence of a powerful cluster of pro-government mass media, we, however, have not detected a similar, but more isolated cluster of Hong Kong media, due to the diversity of their political attitudes and mutual contradictions. Nevertheless, since we cannot deny the intensity of ties between regional media, despite their diversity, we cannot claim that there is no interaction between Hong Kong newspapers, which partly confirms our initial expectations. Finally, regarding the expected role of the main party newspaper of the CPC *People's Daily* as the main information hub between pro-Beijing media, Hong Kong media and foreign sources, we cannot confirm this hypothesis, since the indicators of closeness and betweenness centralities of pro-democratic and politically neutral Hong Kong media - primarily the *South China Morning Post* - turned out to be significantly higher, which allows us to speak, of its connecting role between clusters in the information space of China in the context of our research.

Thus, the results obtained in the course of this study are the basis for an in-depth analysis of the information policy of modern China. They also reveal the specifics of the

formation of the information space in the context of crisis management theory in terms of how China creates the internally controlled environment.

Discussion

This work is one of the few empirical studies that have demonstrated the features of the information space of modern China in the context of political crisis management. The results obtained in this study are of scientific novelty, since they partially refute the existing theoretical and empirical studies on the existence of Beijing's complete control over the information sphere, the most significant elements of which are the print media [Esarey, 2006; Singh, 2012]. Using SNA method and the collected data we managed to obtain the following results: first of all, by constructing a network, we analyzed the specifics of China's information space in the context of the protest movement in Hong Kong in the summer and winter of 2019, and highlight the main actors that form the information agenda in crisis management situation. Moreover, we built and analyzed the complex structure of the relationship of three types of media - pro-Beijing newspapers, local Hong Kong media and foreign media, by testing the formulated hypotheses about the structure of China's media information policy network on the basis of the obtained centrality indicators.

It is necessary to formulate a number of limitations associated with the method of collecting data and the data as such, which can potentially distort the results of this study. First of all, it should be noted that the sample of print media in this study is not random, which is associated with choosing those media that have the greatest coverage of the audience, and therefore, as we assume, have the greatest influence on the audience. After that we use the citations of those media that were cited by the previous ones, thus increasing the matrix. However, since most major media cooperate not with all existing regional and less important printed Chinese editions, there are risks of missing data, especially considering the fact that a number of media, either accidentally or deliberately, can be isolated by the national media by creating and distributing informational agenda in scale of the country. As a consequence of this limitation, one cannot deny the likelihood of a deliberate policy of mutual citation of the media for the creation of certain content and the establishment of a high threshold for the entry of those who have undesirable political content. We can partially confirm this by the example of the increased requirements for obtaining official licenses for print media over the past 70 years, but on the whole this is an assumption that requires further verification due to the lack of the necessary information at this stage of the study. We also admit a limitation concerning the specifics of the audience of these media: first of all, we proceed from the fact that the main audience of these media on the Internet will be mainly young and middle-aged people, since traditionally the older generation uses printed versions of newspapers. Another limitation is that we do not take into consideration the content and audience of microblogging on social networks, who are mainly young people, which will be solved later in the course of the subsequent

development of the research. Finally, at this stage, we cannot assess the real effect of the influence of foreign media on the domestic audience of China, therefore, their effect in the constructed network will be considered limited. In the course of further research, we plan to solve some of the abovementioned limitations by using other methods of analysis, such as sentiment analysis or thematic modeling to include new actors into the model and conduct a more accurate analysis of the nature of dependencies between individual media (use of media information or mutual criticism, for example).

In the course of further research, it is planned to take a number of measures to reduce the limitations indicated in this work. First of all, we plan to include previously unconsidered actors in the network analysis - unofficial media, as well as microblogs and social media users, and also focus on assessing the influence of foreign media on the formation of the information agenda in China, which was not done in the course of this work. In addition, we want to increase the coverage period of China's media information policy analysis, going beyond political crisis management in the context of the Hong Kong protests from June to December 2019; in particular, one can see the changes in media interaction during the protests in 2019 and a year later, in 2020. It is also of interest to analyze the information policy of the Chinese and Russian governments in the context of crisis management, which can be implemented through a comparative study with China and Russia during the protests. Finally, we also plan to conduct the analysis of what media use to interpret the events in Hong Kong in 2019, which can be addressed through thematic modeling of media article texts and other NLP techniques.

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