



A Brief Report of the Impact of COVID-19 Epidemic on Freight Transportation in China

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I. Background of the report

At the beginning of 2020, a case of pneumonia of unknown cause (later confirmed as COVID-19, hereinafter referred to as "COVID-19") appeared in Wuhan, Hubei Province, China. Since January 23, China's COVID-19 pandemic has entered a period of rapid development, 30 provinces and cities have been infected cases, China's socio-economic development and people's production and life suffered a huge impact. The nationwide outbreak of COVID-19 is a major public health emergency with the fastest spread, the widest infection range and the most difficult prevention and control since the founding of New China. In the face of the epidemic, under the correct leadership of the Party Central Committee, China has continuously taken effective measures, carefully deployed and scientifically prevented the epidemic. In addition to local areas, most of the epidemic areas have lowered their emergency response levels and have been raised the blockade one after another, and all social production and life has basically returned to normal operation.

As the basic service industry of the national economy, road freight is closely related to the production and life of the whole society. During the epidemic period, the overall transport network system has been greatly impacted, and the operation of the freight industry chain system has been significantly affected, but the overall system has shown a good ability to resist shocks, and the road freight system has shown good resilience. At the same time, in the process of fighting the epidemic and resumption of work and production, road freight transport has also played a strong supporting role in the transportation of key medical and living materials. In order to comprehensively review and evaluate the impact of China's road freight system during the epidemic period and its important role in the anti-epidemic rescue process, Chang 'an University, together with the Planning and Research Institute of the Ministry of Transport and Beijing Sinoiov Information Technology Co., Ltd., compiled *A Brief Report of the Impact of COVID-19 Epidemic on Freight Transportation in China*. The brief report analyzed and elaborated the process, degree and anti-epidemic guarantee of the industry affected by the epidemic.

II. Relevant explanations

1. Description of report data source:

- Freight industry data mainly comes from the freight vehicle operation data 1 in the "National Freight Vehicle Public Supervision and Service Platform" (hereinafter referred to as the "Platform")¹.
- The economic data comes from the data released by the National Bureau of Statistics (January-May).
- Epidemic data comes from the data published by the national and local health committees.

2. Definition of reporting time limit and epidemic period:

- The data on highway freight activities used in the report covers the period from January 1, 2020 to May 31, 2020.
- Based on the development of the epidemic, the report takes January 14, 2020 (the 20th day of the 12th month of the lunar) as the starting point of the epidemic impact analysis and May 31, 2020 (the 9th day of the leap month of April) as the end point of the time, for a total of 139 days. In the report, the early stage of the epidemic development refers to January 14 to January 22, the middle stage of the epidemic development (severe period) refers to January 23 (Wuhan lockdown) to March 25 (Hubei release), and the late stage refers to March 26 to May 31.

¹ As of April 2020, the platform has a total of 6.3 million freight vehicles, accounting for about 95% of the national heavy haul freight vehicles. The platform uses Beidou and other positioning technologies to track the whole process of vehicle operation in real time, which can fully reflect the process of vehicle activities.

III. Main data

1. Affected by the epidemic situation, the overall production of highway freight in China has been greatly impacted. According to the data, In the first quarter of 2020, the rated traffic volume and the rated turnover volume² of highways decreased by 26.33% and 25.09% respectively. (according to statistical data, highway freight volume and turnover volume decreased by 35.46% and 38.04%³ respectively). During the epidemic period, the loss of the overall transport efficiency⁴ of highway freight transport was about 17.6%.

2. During the epidemic period, the active level of road freight generally decreased, , with the active level of capacity in most areas dropping by nearly 60%; the average daily operating mileage of freight vehicles lost about 29 kilometers, down by about 22% year-on-year, and the average daily operating hours decreased by about 0.8 hours, down by about 29% year-on-year; Among them, the production activities of highway freight in key epidemic areas temporarily stagnated, and the activity level of Hubei vehicles dropped to below 60% of the national average; the average daily operating mileage decreased by about 70 kilometers, down about 57% year on year; the average daily operating hours decreased by about 1.57 hours, down about 61% year on year.

3. With the effective control of the epidemic nationwide, the highway freight system has shown strong resilience, providing strong support and guarantee for the resumption of work and production in the whole society. From January 14, 2020 to February 2, 2020, after 20 days, the growth rate of highway freight flow in 83% of the cities in China decreased by the largest margin compared with the same period last year, which was basically consistent with the spread of the epidemic. In the first quarter of 2020, the traffic volume of highway freight vehicles in about 30% of cities in China lost more than half compared with the same period of last year. However, since February 15, the resumption of work and production across the country has accelerated, and the highway freight industry has rebounded significantly; on March 25, 72 days after the large-scale outbreak of the epidemic, the active level of the freight industry basically recovered to the level of the same period last year, and the

² The rated traffic volume and the rated turnover volume are calculated according to the rated load weight recorded by the platform vehicles.

³ On April 30, 2020, the economic operation analysis announcement of the Ministry of Transport showed that the national highway freight volume decreased by 22.2% in the first quarter, which was calculated according to the adjusted data of the special survey of freight volume in 2019.

⁴ Overall transport efficiency of freight transport system: It is defined as the average value of transport volume loss, turnover loss, speed loss, daily average operating mileage loss and operating time loss.

efficiency of highway freight transport rebounded significantly. The overall resumption coefficient was about 1.26, and the resumption coefficient was about 1.17. The freight industry as a whole showed good impact resistance and resilience.

4 During the epidemic period, the highway freight system based on expressway played an important role in emergency support. On February 15, the Ministry of Transport issued the *Notice on Toll Exemption for Tollway Vehicles during COVID-19 Pandemic Prevention and Control*, which decided to exempt tollway tolls during the epidemic period. Influenced by the policy, the proportion of expressway used by highway freight vehicles in China has increased by about 16.6%, and about 70% of the total freight transport mileage has been completed in the expressway. Meanwhile, the average daily operating speed of highway freight vehicles increased to 47 km/h, representing a year-on-year increase of approximately 8%, of which the average speed of freight vehicles in the expressway was 67.52 km/h, representing a year-on-year increase of approximately 6.5%. On January 23, after Wuhan and other cities in Hubei began lockdown one after another, all localities actively carried out rescue operations to deliver medical and living materials to the epidemic areas. During the epidemic, the proportion of foreign vehicles in Hubei increased by 25% year on year, and the freight network in South China and East China assumed important rescue functions, with provinces and cities such as Nanyang and Yueyang becoming important nodes, and the 15 national highways through Hubei assumed about 28% of the nation's freight traffic during this period.

IV. Impact of the epidemic on the highway freight industry and recovery

1. During the epidemic period, the overall highway freight transport was greatly affected. About 20 days after the outbreak of the epidemic, the freight flow in most cities across the country dropped to the lowest level. With the epidemic prevention work and the resumption of work and production, the whole industry recovered rapidly. About 70 days after the outbreak of the epidemic, the activity of highway freight transport has recovered to the same period last year, showing a strong self-healing and impact resistance.

Since January 23, 2020 (the 29th day of the 12th month of the lunar calendar), COVID-19 pandemic has spread rapidly in China, and Wuhan has taken the lead in implementing lockdown strategies and high-level control measures. During this period, the highway freight industry was affected by both the epidemic and the Spring Festival holidays, and the proportion of daily active vehicles failed to rebound quickly after falling to the lowest level in the whole year (below 5%, basically the same as in 2019), and only maintained at about 10% in the past 20 days after the Spring Festival, with the loss of active level reaching its maximum on the 22nd day after the festival, exceeding 40%. During the whole epidemic period, the average daily loss of the active level of freight vehicles was about 12.2%.

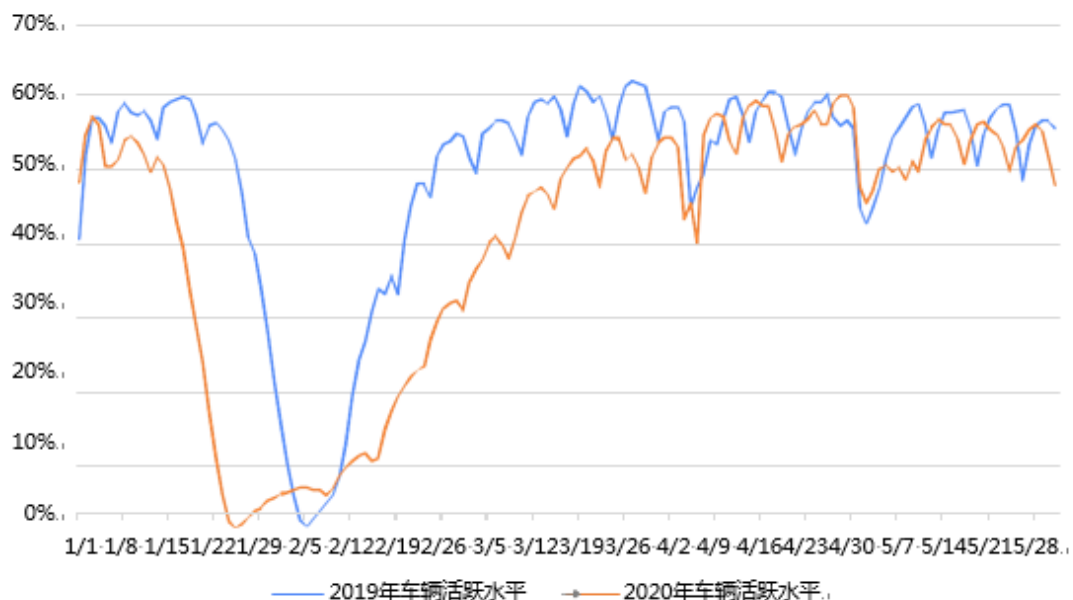


Figure 1 Change in the activity level of national freight vehicles in the same period in 2020 and 2019

After February 19 (the 26th day of the first lunar month), the rapid development of the epidemic has been effectively controlled, and

the daily number of confirmed cases is close to zero growth. The level of highway freight activity began to pick up rapidly. At the same time, affected by the national tollway free policy and other factors, the activity level of freight vehicles rebounded rapidly, and the industry vitality gradually recovered, which basically rose to the same period last year around March 25 (early March of the lunar calendar), that is, about 72 days after the outbreak of the epidemic.

Monthly data also show that in April and May 2020, the operating mileage of highway freight vehicles exceeded that of the same period last year, showing the good shock resistance and rebound ability of the highway freight industry. In May 2020, the year-on-year data of cities and regions in China showed that, except for the northern part of North China, the eastern part of Southwest China, Xinjiang, Tibet, Heilongjiang and other local border areas, the freight flow of most cities in China had recovered to the level of last year. At the same time, the scale of freight activities in most areas of Central China, South China, Northwest China and Northeast China exceeded that of the same period last year.

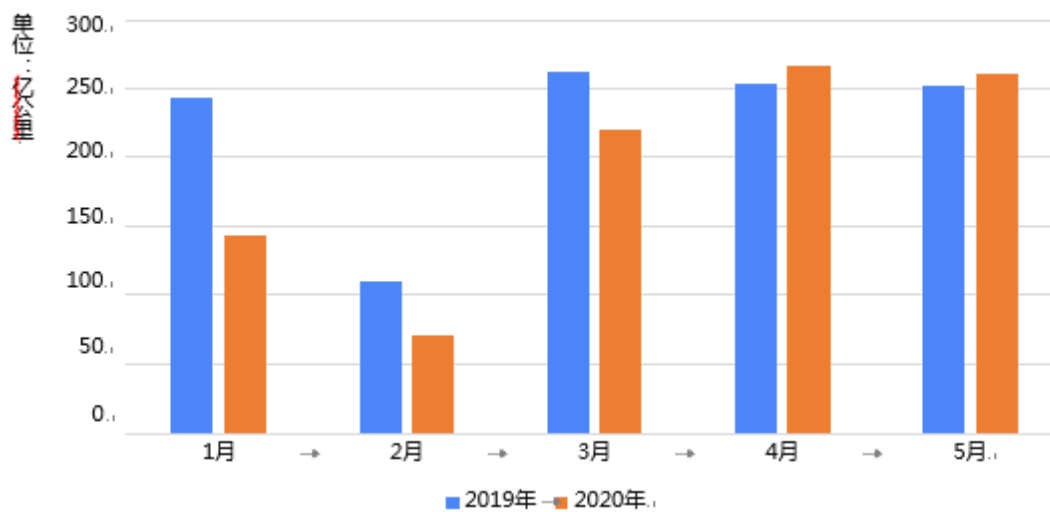


Figure 2 Comparison of the total mileage of highway freight transportation from January to May in China from 2019 to 2020

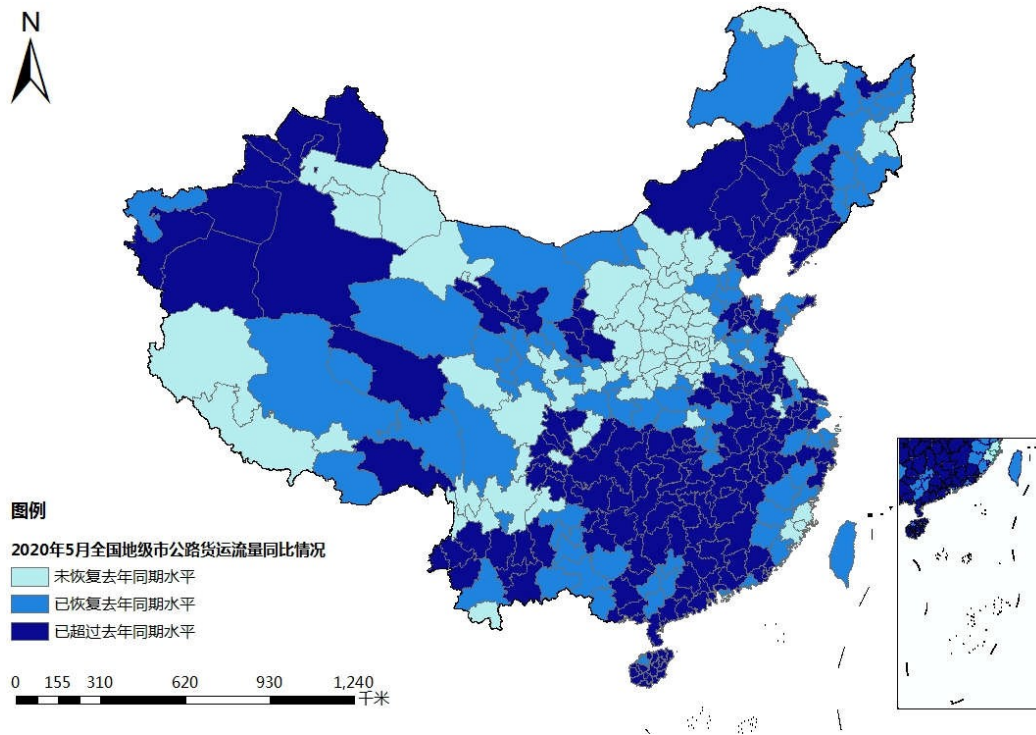


Figure 3 Recovery of highway freight flow in cities across the country in May 2020

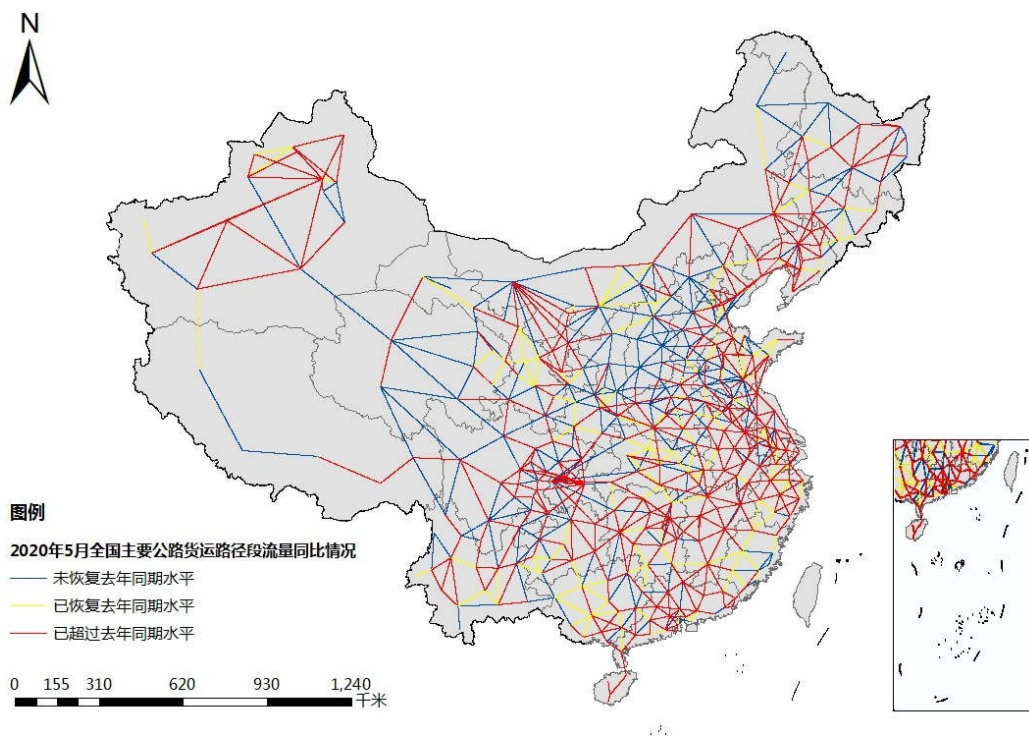


Figure 4 Recovery of freight flow among cities in China in May 2020

2 Affected by the epidemic, the production efficiency of highway freight vehicles decreased significantly, and the average daily operating mileage decreased significantly, but rebounded significantly during the recovery period, and the average daily operating mileage exceeded the same period last year. After the effective control of the epidemic, the active level of highway freight continued to rise, while the freight transport capacity also recovered rapidly, the overall resumption coefficient was about 1.26⁵, the resumption coefficient was about 1.17⁶, and the resumption of work and production was progressing smoothly.

According to the platform data, the report calculates the average weekly operating mileage level of highway freight vehicles during the epidemic period in 2020, and compares it with the same period in 2019. The results showed that in the middle of the epidemic, the operating mileage of freight vehicles in China was significantly lower than that in the same period of 2019. The average weekly operating mileage of freight vehicles in China was 725.8km (928.7km in the same period of 2019), with a difference of about 203km and an average daily loss of about 29km, a decrease of about 22% compared with the same period last year.

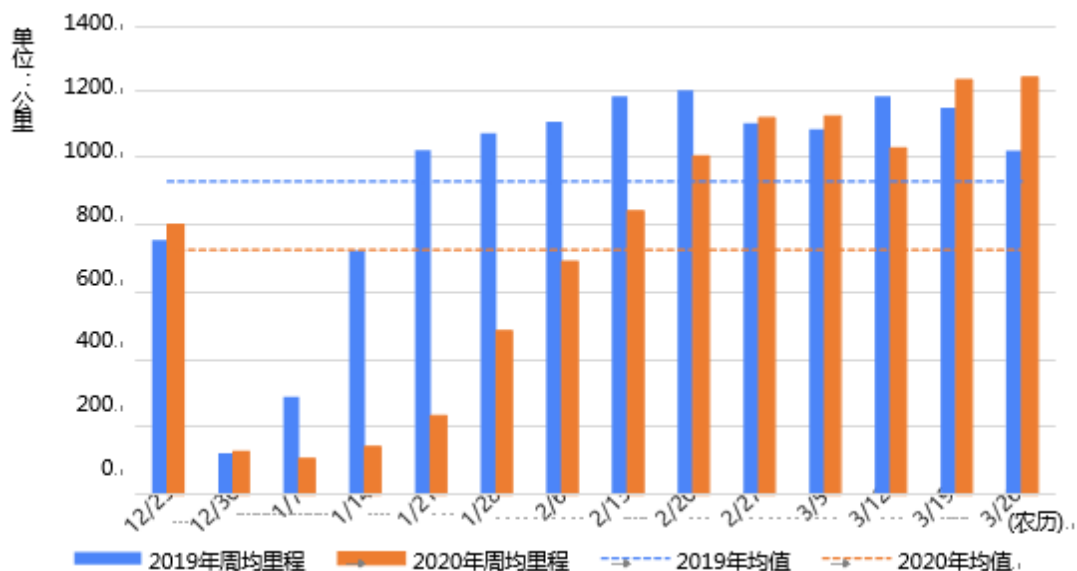


Figure 5 Year-on-year change of weekly average operating mileage of highway freight vehicles in China during the epidemic period

With the active and orderly promotion of epidemic prevention

⁵ The coefficient of resumption of work is expressed by the active level of freight vehicles, that is, the increase of the active level of vehicles every week.

⁶ The coefficient of resumption of production is expressed by the recovery elasticity of the rated turnover, that is, the increase of the rated turnover relative to the active level of vehicles.

throughout the country, various functions of social production and life have been gradually restored, and the active level and production capacity of the highway freight industry have rebounded rapidly. Platform data show that during the rapid recovery period, the overall recovery coefficient of highway freight vehicles is about 1.26. After March 25, the activity level of freight vehicles has approached the same period last year, the growth rate has gradually stabilized, and the process of resumption of work has basically ended. In the meantime, the comparison between the weekly rated turnover and the increase of vehicle activity level shows that the elasticity of freight turnover relative to vehicle activity level has also maintained a high level, with an elasticity coefficient of about 1.17, indicating that while the highway freight industry is rapidly resuming work, the transport capacity has also shown a high level of recovery, and the process of resumption of work has basically ended.

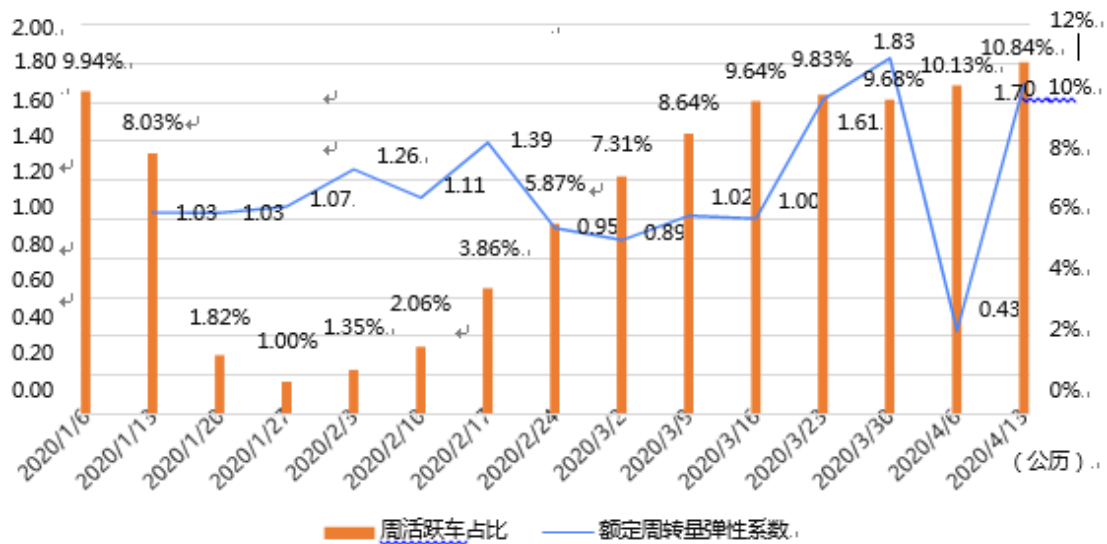


Figure 6 Weekly proportion of active freight vehicles and elastic change of rated Turnover in 2020

3. The key epidemic areas were greatly affected by the epidemic, the freight transport capacity in Wuhan and Hubei recovered slowly, and the average daily loss of freight transport activity in Hubei was about 40% within 50 days of the outbreak of the epidemic. Affected by the relevant positive policies, the loss began to decline rapidly from the end of March to May 2020. The active level and production scale of freight transport in key epidemic areas have exceeded the same period last year.

Wuhan and other cities in Hubei as a key epidemic area, the production of highway freight has been seriously affected, about 50 days after the Spring Festival, the active level of freight vehicles in

Hubei is only maintained at about 5%. Around March 23 (the end of February in the lunar calendar), after the national freight production level almost returned to normal, the active level of freight vehicles in Hubei was only about 20%, but after the key epidemic areas were released, the loss of the active level of freight vehicles dropped rapidly, from early April to about April 20. The loss of vehicle activity level is basically maintained below 10%. In May 2020, the total mileage of highway freight vehicles in Hubei Province has exceeded the same period last year.

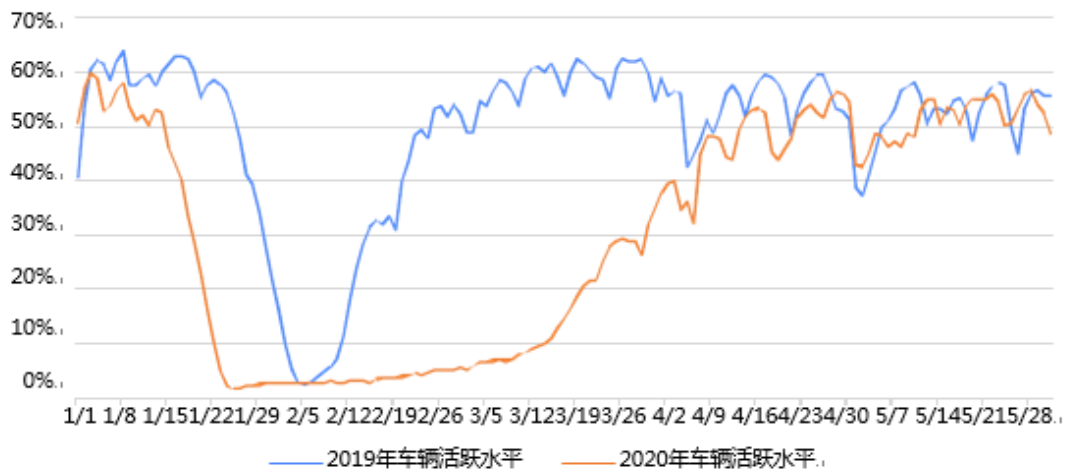


Figure 7 Change in the active level of Hubei freight vehicles in 2019 and 2020

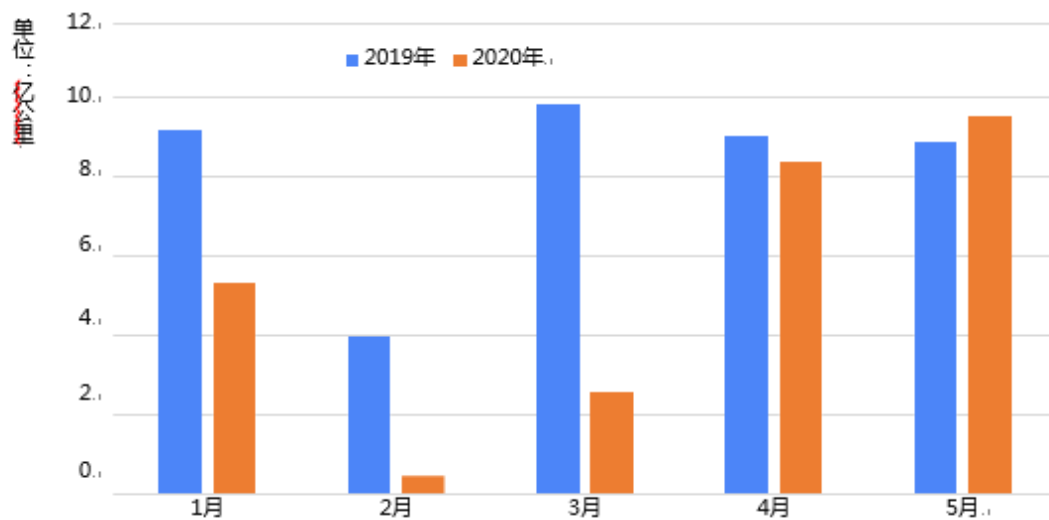


Figure 8 Comparison of total mileage of Hubei highway freight Vehicles from January to May in 2019-2020

4. During the epidemic period, the types and efficiency of roads used by freight vehicles have changed greatly, and the toll reduction and exemption policy of tollway has significantly increased the utilization level of expressway. After the implementation of the policy, the proportion of expressway utilization has increased by about 25% year on year. At the

same time, the traffic efficiency of highway freight has been improved, and the average speed of vehicles has increased by about 8%. The proportion and speed of expressway dropped to normal level.

In order to give full play to the service and guarantee functions of the transportation industry and alleviate the impact and influence of the epidemic on the economic production and life of the whole society, the Ministry of Transport issued the *Notice of the Ministry of Transport on Toll Exemption for Tollway Vehicles during COVID-19 Pandemic Prevention and Control* on February 15, 2020, and decided to exempt tollway tolls during the epidemic period. During the epidemic period, the average proportion of expressway mileage of freight vehicles was 63.25%, up 16.6 percentage points from the same period last year (46.67%). Among them, after the implementation of the policy, the share of expressway transportation has increased significantly, and the proportion of mileage has risen rapidly to about 70%, an increase of about 25% over the same period last year. The expressway transportation system has played a great role in supporting the transportation of various production and living materials and the rescue and support of emergency materials such as medical treatment during the epidemic period.

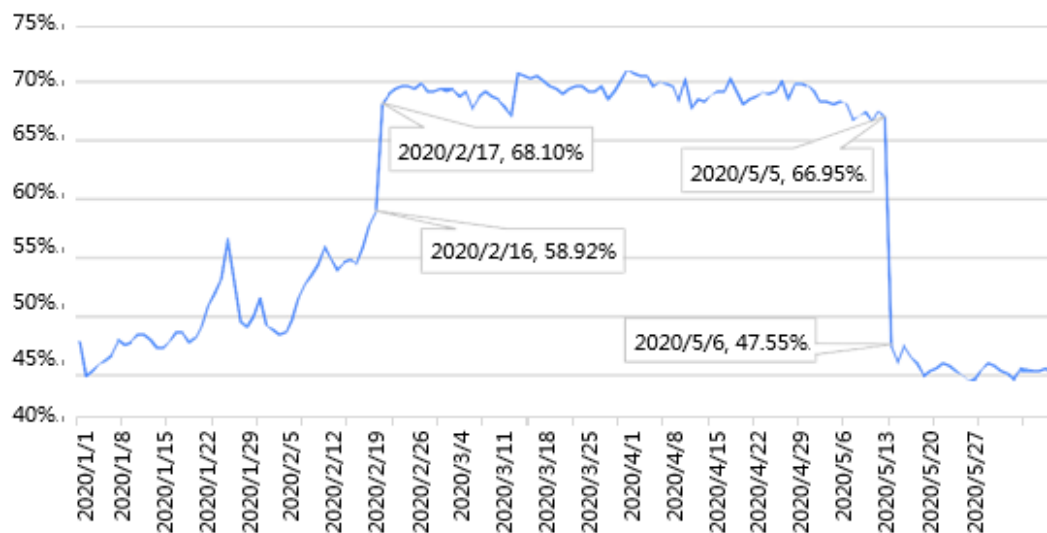


Figure 9 Proportion of national freight vehicles using expressways in 2020

During the epidemic period, the activity level of highway freight vehicles was generally limited, but at the same time, the decrease of transport network flow led to the decrease of road congestion, which in turn increased the speed of freight vehicles.

From January 25 (the first day of the first lunar month) to February 15 (the 22nd day of the first lunar month), the average speed of

freight vehicles was 45.39 km/h, representing a year-on-year increase of approximately 2%. Since February 15, the toll reduction and exemption policy has led to a significant increase in the level of expressway utilization of freight vehicles and a significant increase in speed. The calculation results show that during the epidemic period, the average speed of freight vehicles was 47 km/h, which increased by about 8% compared with the same period last year (43.63 km/h). On February 23, the average speed reached a peak of about 50.5 km/h. Monthly data show that the speed of freight vehicles across the country basically returned to the same period last year in May.

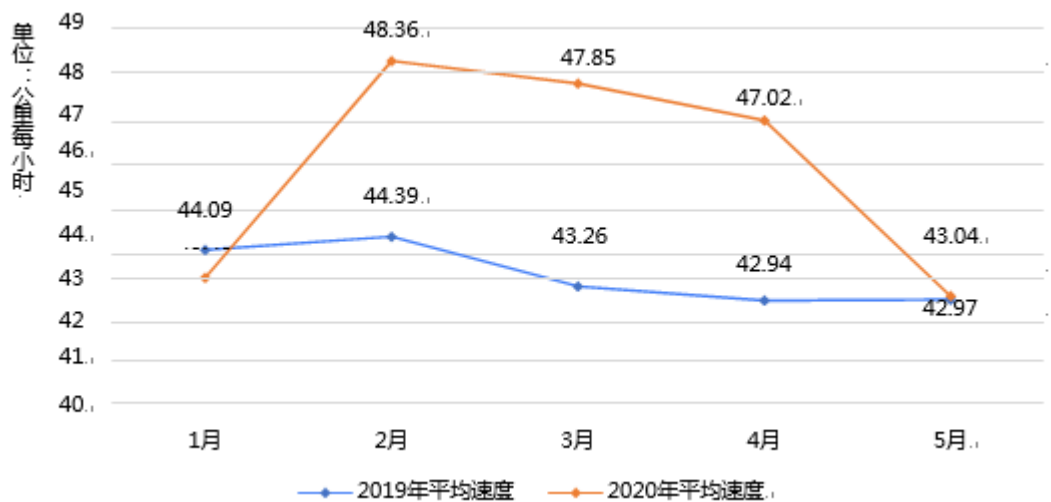


Figure 10 Comparison of operation speed of national freight vehicles in the same period between 2019 and 2020

5. Affected by the epidemic situation, the reduction of highway freight flow in various cities and routes across the country is different. In addition to Wuhan and other key epidemic areas in Hubei, the freight flow in Xinyang, Yueyang and other places has decreased significantly, and the freight links between Hubei and Henan, Hunan, Anhui and other places have decreased significantly. Eight major urban agglomerations in China have been significantly affected by the epidemic, and the highway freight flow has lost more than half during the severe epidemic period. The highway freight flow of Chengdu-Chongqing, Guanzhong, Harbin-Changsha and other urban agglomerations has basically recovered to the same period last year.

After the outbreak of the epidemic, in order to effectively block the spread of the epidemic, traffic control measures were taken in many parts of the country to restrict the level of circulation within cities and

between regions. Based on the platform, the report calculates the changes of freight traffic in cities and inter-city roads across the country during the worst period of the epidemic in 2020 and the same period in 2019. The results show that during the worst period of the epidemic, the freight flow of each city in the country decreased differently, of which, except in the key epidemic areas (Hubei), 20% of the cities such as Xinyang, Yueyang, Taizhou and Hegang decreased significantly, with an average of about 69%. 63% of cities such as Weinan, Quanzhou, Xuzhou and Hengshui declined by an average of 50%, while 13% of cities such as Beihai, Yichun, Dandong and Maoming were less affected, with an average decline of less than 32%. The overall average decline in key epidemic areas (Wuhan and other areas of Hubei) is about 83%.

From the decline level of inter-city road freight flow, in the early stage of the epidemic, the decline of inter-city flow was relatively small, with the continuous development of the epidemic situation, affected by the lockdown of some cities in Hubei, the inter-city flow in Hubei has declined significantly. In addition, Xinyang in Henan Province to Xiaogan in Hubei Province, Yueyang in Hunan Province to Xianning in Hubei Province, and Lu'an in Anhui Province to Huanggang in Hubei Province showed a significant decline. Among the neighboring provinces in Hubei Province, Henan, Hunan and Anhui were the first to be significantly affected. The flow between cities around Hubei, between cities in Beijing-Tianjin-Hebei region and between cities in most western regions decreased by more than 70%, while the flow between cities in the south of Northeast China, Southwest China and the east of Central China decreased by less than 25%.

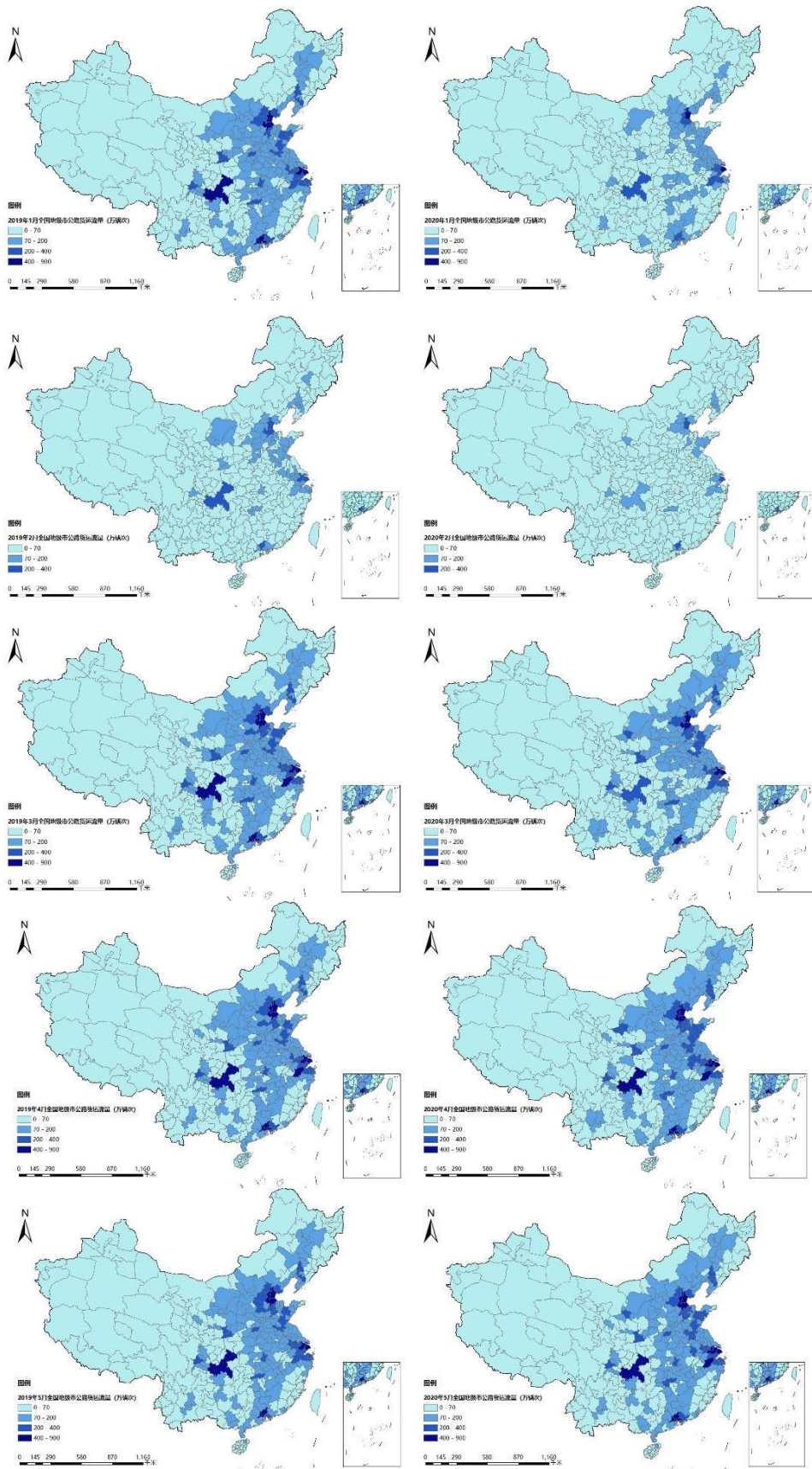


Figure 11 Comparison of national highway freight flow (left column from top to bottom is from January to May 2019, and right column is from January to May 2020)

The analysis results of typical development areas (urban agglomerations) show that, affected by the epidemic, the level of highway freight traffic in the eight major urban agglomerations in China has declined significantly compared with the same period last year. The Central Plains urban agglomeration, Yangtze River midstream urban agglomeration, Guanzhong urban agglomeration, Beijing-Tianjin-Hebei urban agglomeration and Yangtze River Delta urban agglomeration are more significantly affected. During the severe epidemic period, the loss of freight traffic in all urban agglomerations was more than half, with the Central Plains urban agglomeration falling by 62.56%, the Guanzhong Plain urban agglomeration by 58.85%, the Beijing-Tianjin-Hebei urban agglomeration by 53.39%, the Yangtze River Delta urban agglomeration by 50.37% and the Chengdu-Chongqing urban agglomeration by 50.14%. In May 2020, with the resumption of work and production basically completed, the flow of urban agglomerations basically returned to normal, and the flow level of the Yangtze River Delta, Pearl River Delta, the middle reaches of the Yangtze River, Chengdu-Chongqing and other urban agglomerations exceeded the same period last year.

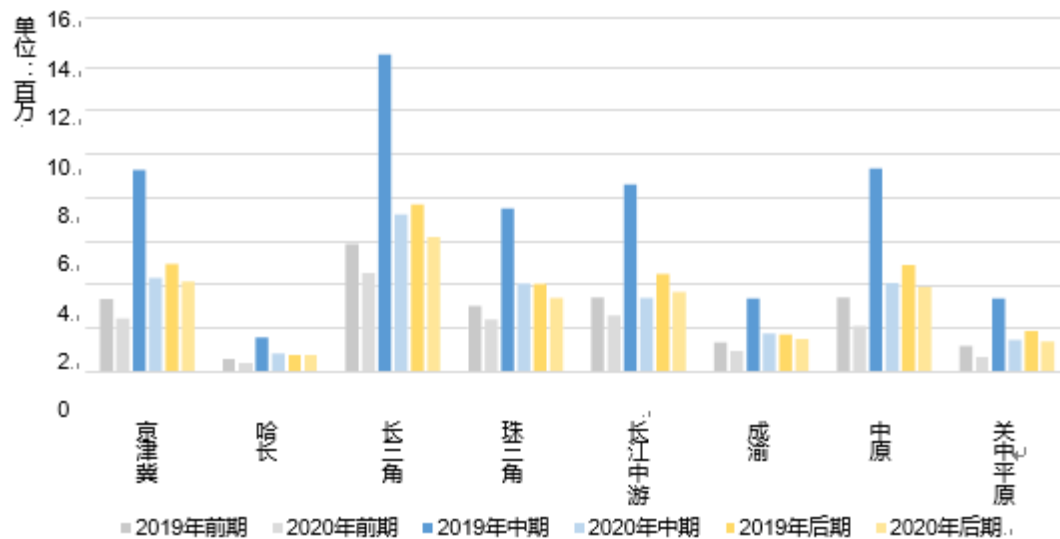


Figure 12 Year-on-year change in freight traffic of eight major urban agglomerations in China during the epidemic period

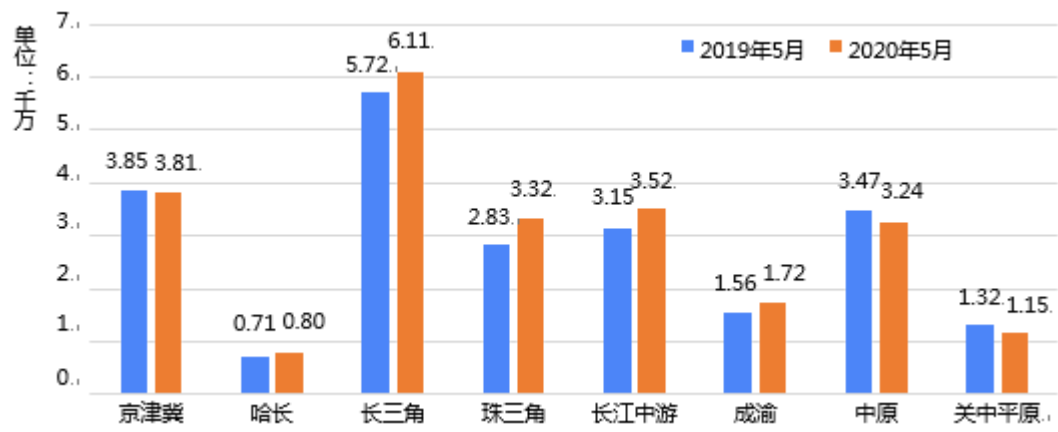


Figure 13 Year-on-year change in freight traffic of eight major urban agglomerations in China in May 2020

V. The important role of highway freight transport in the anti-epidemic process

1. During the epidemic period, highway freight transport has become an important support force for anti-epidemic rescue. based on the national unified dispatching command, the proportion of foreign vehicles in key epidemic areas (Hubei Province) has increased significantly, and the road transport capacity has effectively played an emergency response function, highly reflecting the support capacity and cooperation efficiency of the highway freight transportation network.

As one of the "main arteries" for the effective circulation of all kinds of materials in society, highway freight transport has played an important role in the national anti-epidemic process, effectively guaranteed the transportation of all kinds of production and life, emergency rescue, medical and health materials in the whole society, and made important contributions to the work of epidemic prevention and anti-epidemic. Taking the key epidemic area (Hubei Province) as an example, on January 23 (the 29th day of the 12th lunar month), Wuhan took the lead in launching lockdown control measures. As a result, the operating rate⁷ of Hubei freight vehicles in different places dropped rapidly, and the epidemic situation developed seriously. The lowest dropped to about 10%; At the same time, freight vehicles from other provinces can't enter the epidemic areas, which leads to the rapid drop of the mixed rate⁸ of freight vehicles in Hubei to about 25%.

⁷ Non-local operation rate: the proportion of local vehicles operating in other places in the whole activity process.

⁸ Non-local operation rate: the proportion of local vehicles operating in other places in the whole activity process.

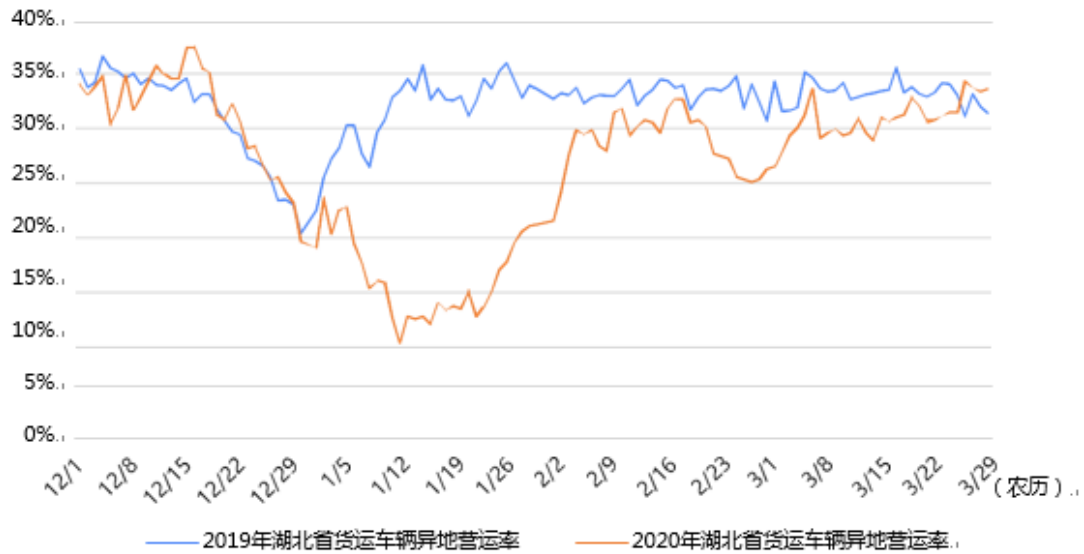


Figure 14 Year-on-year change in the operating rate of freight vehicles in different places in Hubei Province

With the epidemic prevention and control work carried out one after another, in order to ensure the normal operation of production and life in key epidemic areas and the orderly progress of medical assistance work, various materials were delivered to epidemic areas by road transportation in various regions of the country. Around February 9, the proportion of foreign vehicles in Hubei Province increased rapidly. In the next 30 days, the mixed level of vehicles in Hubei remained at 50% and above, with the highest period reaching 65.61%. The nationwide transport capacity linkage and high coordination provide an important support for the anti-epidemic work.

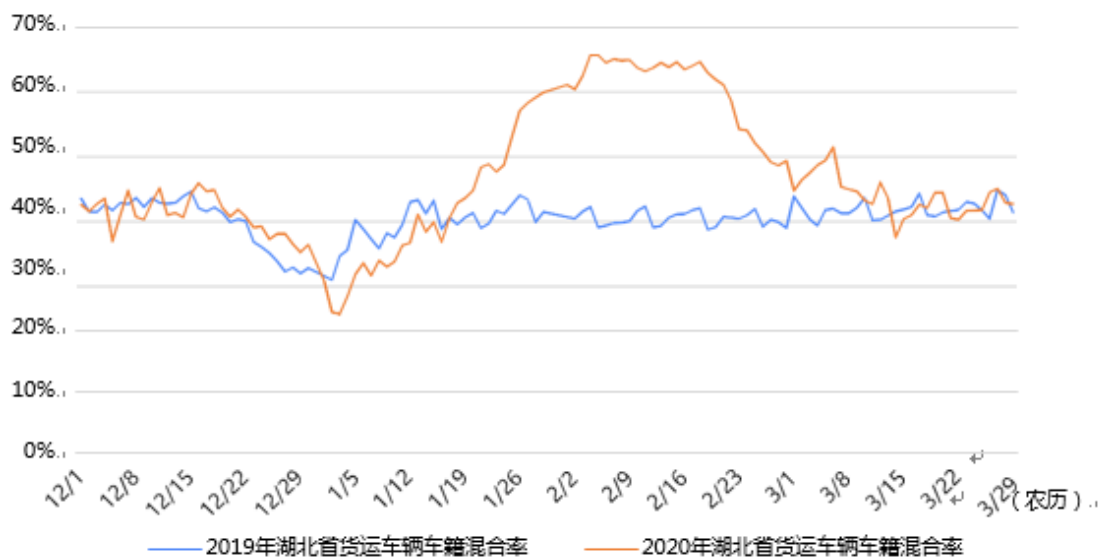


Figure 15 Year-on-year change of mixed rate of freight vehicles in Hubei Province

During the epidemic period, freight vehicles in many provinces and

cities across the country carried out joint assistance operations for key epidemic areas, and the proportion of anti-epidemic assistance vehicles from Hunan and Henan was prominent, with the proportion of vehicles reaching 22.41% and 18.12% respectively. Freight vehicles in other provinces and cities also played an important role in the transportation of anti-epidemic materials. Xinjiang, Heilongjiang, Yunnan and Guangxi, which are far away from Hubei, also actively participated in the transportation, with the proportion of freight vehicles reaching 0.04%, 0.13%, 0.97% and 2.72% respectively. In terms of rescue routes, a number of transport routes centered on Hubei have played an important role, and the flow level of routes in South and East China is relatively high. Among them, "Foshan-Guangzhou-Qingyuan-Shaoguan-Chenzhou-Hengyang-Zhuzhou-Xiangtan-Changsha-Yueyang-Jingzhou" has become the main rescue route during the epidemic. Nanyang, Yueyang, Xiangtan, Zhumadian, Changsha, Zhuzhou and other cities have become the main rescue route nodes, and the proportion of highway freight rescue vehicles passing through these cities to Hubei cities ranks first.

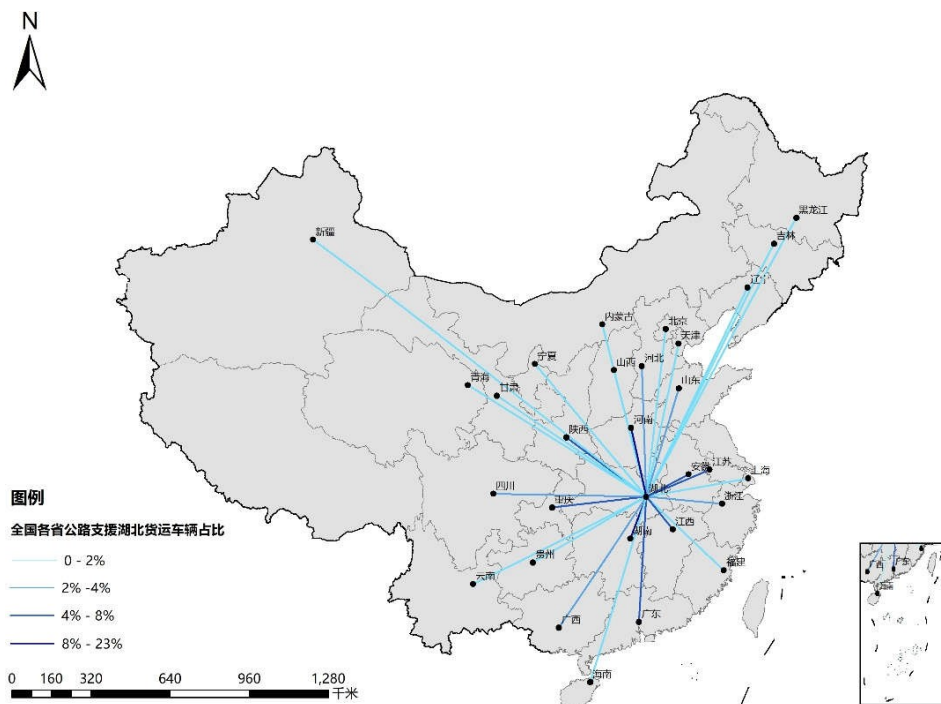


Figure 16 Distribution of the proportion of freight vehicles supporting Hubei in various provinces and cities across the country

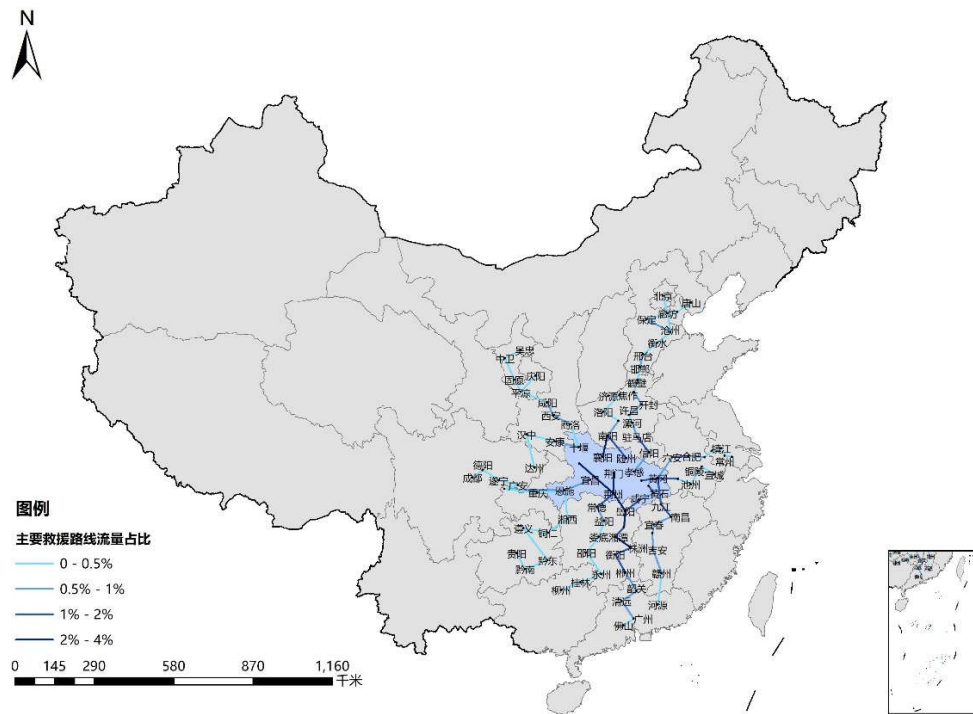


Figure 17 Distribution of main routes supporting Hubei freight vehicles in China

2. During the period of epidemic prevention and control and resumption of work and production, the national backbone transportation network played an important supporting role. The 15 national expressways passing through Hubei undertook 28% of the national freight traffic, and the expressway transport corridors still played an important transport support role during the epidemic period.

Since Wuhan and Hubei occupy an important position in the national transportation system, the national freight system was significantly affected by the closure control measures in Hubei Province, but the national trunk transportation network still plays an important transportation security function. Data show that during the severe epidemic period, the total freight flow of 15 national expressway passing through Hubei (except the high-speed section around Wuhan) is close to 28% of the total national flow. Among them, the Shanghai-Chengdu channel (horizontal) has the largest flow, and the single-channel flow accounts for about 5.28% of the whole country. In general, the overall flow of the transverse channel is greater than that of the longitudinal high-speed channel. In this epidemic prevention and control work, the important position of expressway transportation channel in China's highway freight transportation activities has been further reflected.

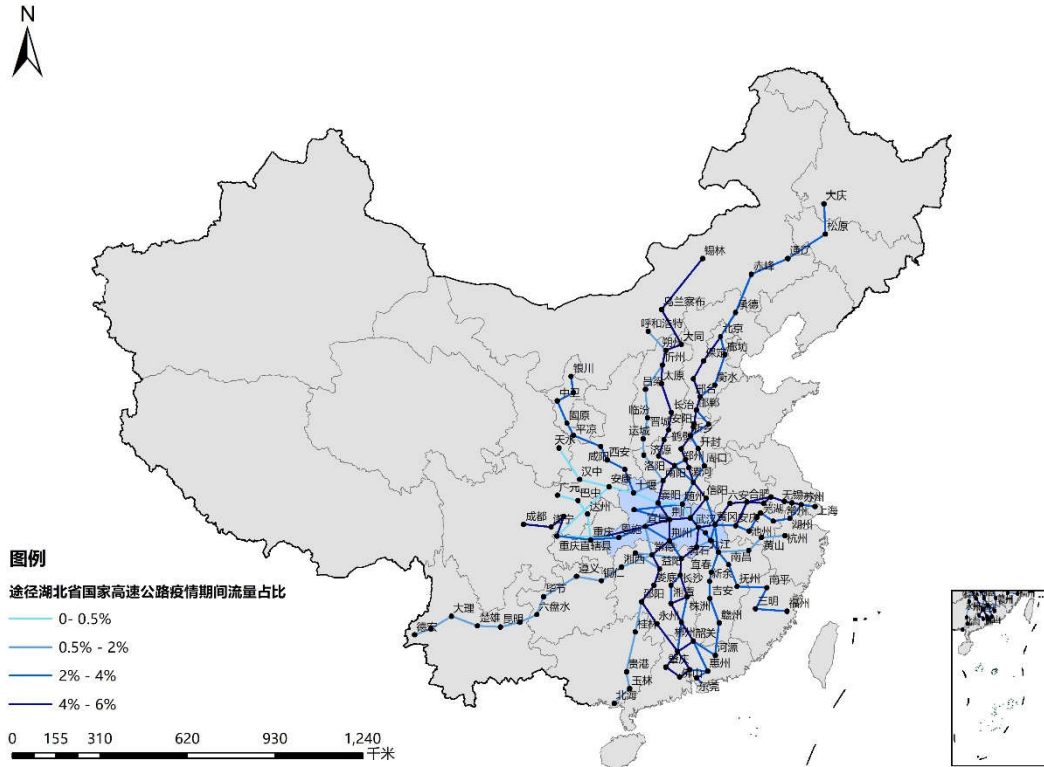


Figure 18 Flow proportion and distribution of national expressways passing through Hubei during the epidemic period

Table 1 The proportion of national expressways passing through Hubei Province during the epidemic period (top five)

High speed passage name	Proportion of freight vehicle flow	Passage properties
Shanghai-Chengdu Passage	5.28%	Horizontal line
Shanghai-Hubei Passage	5.02%	Parallel line
Guangdong-Guangxi Passage	4.71%	Longitudinal line
Beijing-Guangzhou Passage	4.40%	Radiation
Fuzhou-Yinchuan Passage	3.84%	Horizontal line

VI. Conclusions and recommendations

1. China's highway freight transport has formed a modern industrial system with high industrial resilience, strong transport organization capacity and high impact resistance.

The highway freight is the main artery of the national economy, responsible for the production of living materials circulation important functions, during the epidemic period, although the highway freight has been a greater impact, it almost spread to the entire national road freight transport network, key epidemic areas and nearly stagnant freight activities in about 20 days, however, it returned to normal in about 50 days later. The growth rate of resumption of work and production is about 26% and 17% respectively. Compared with other industries⁹, China's road freight industry has shown a significant ability to recover quickly after a wide range of emergencies, and has also shown a good industrial chain resilience.

2. Highway freight transportation has an important and irreplaceable position and role in the national emergency relief system.

Along with the continuous advancement of China's comprehensive transportation system construction, the functions and roles of each mode in freight transportation are constantly optimized. Road cargo transportation has the advantages of high flexibility, wide coverage and high-end penetration; therefore, it has important social service and guarantee functions in the case of major public emergencies. During the prevention and treatment of the COVID-19, the proportion of foreign freight vehicles in key epidemic areas rose rapidly by 25% in a short period of time during the fight against the epidemic, and highway freight played an important role in the process of guaranteeing the transportation of various kinds of living and medical supplies.

3. The highway freight network system is closely related to the national macro-economic production pattern. On the basis of the infrastructure corridor network system, attention should be paid to the construction of the backbone transportation network system.

The analysis of the data in the report shows that the pattern of freight transport networks and the national macroeconomic and industrial

⁹ Data in this report show that around March 25, key indicators such as the level of highway activity have returned to the same period last year. Meanwhile, according to the relevant data of the Chinese government website, on May 1, the resumption rate of life service industry was 80%, on May 2, the recovery rate of enterprise income was 95%, on April 15, the resumption rate of small and medium-sized enterprises was 84%, and on April 7, the operating rate of real estate and municipal engineering was 85%.

pattern is closely interdependent. During the epidemic, the national transport corridor network played an important backbone support role. Despite the impact of the epidemic, the 15 national highways associated with key epidemic areas still carried about 28% of the national freight traffic. However, at the same time, the state of the entire network under external shock highlights the important position and role of some city nodes and some lines in the process of global emergency response. Therefore, while emphasizing the connectivity of the backbone network of facilities, attention should be paid to the construction of the transportation backbone network system in the process of freight production activities, and the support capacity of important emergency hubs and emergency lines should be strengthened.

4. With the help of the information platform for monitoring and organizing the production of important freight transportation, we should actively carry out the construction of the national emergency transportation supply chain system in response to the state of emergencies. Along with the rising level of socio-economic development, the flow of information, people and materials of all kinds is accelerating, leading to the expansion of the scope and extent of the impact of various major emergencies, which also puts forward higher requirements for the response and disposal capabilities of various industries and departments to deal with major public emergencies. In terms of highway freight, at present, relying on big data, cloud computing, artificial intelligence and other advanced technologies, all kinds of goods transport production organization, operation and supervision platform technology level is constantly improving, but due to the existence of information division between the platform, geographical division and other factors, resulting in insufficient resource sharing and collaborative scheduling level, Therefore, with the help of various national freight basic information platforms, it is urgent to actively carry out the integration of road freight information resources and further improve the efficiency of road freight transport organization, which will help to improve the technical level of the national emergency supply chain system.