

# Study of COVID-19's influence on Wuhan's economy

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**Abstract.** At the beginning of 2020, COVID-19 came unexpectedly, which has brought incalculable losses to China, especially Wuhan. As the core area of the outbreak of the COVID-19, it is of great significance to study the economic development of Wuhan under the impact of the epidemic and the response strategies of Wuhan municipal government to deal with such large-scale public health emergencies. Taking the changes in important economic indexes of Wuhan in 2020 as the starting point, the following paper will present a study of the impact of COVID-19 on the economic development of Wuhan. After that, the effect of the main treatments taken by Wuhan's government in order to revive the economy will be evaluated, and policy suggestions will be given according to the evaluation results.

**Keywords:** COVID-19, Impact on Economy, Economic Treatment, Policy Suggestions.

## 1. Introduction

The outbreak of COVID-19 is a major public health emergency with the fastest transmission speed, the widest range of infection and the greatest difficulty in prevention and control since the founding of new China. Owing to it, 2020 has been quite a challenging year to Wuhan, to China and to almost the whole world. With the epidemic, Wuhan, a city located in the central part of China, was again widely discussed around the world. While threatening people's lives and health, the epidemic also has a huge impact on the economy of a city. Many enterprises had no choice but to abide by national regulations and stop production under the epidemic situation, and people who worked for these enterprises were also facing the crisis of income reduction and unemployment. Despite the fact that the situation in Wuhan has been brought under control with the efforts of both the citizens and the government, issues such as reducing the loss and restoring economic order are still facing us. In this regard, the government of Wuhan has taken certain treatments to revive the economy, which were in line with the goal and have achieved success in the short run. It is true that countermeasures as issuing consumer voucher helped Wuhan get out of the economic downtown caused by epidemic in a short time. However, this comes at a price. The fiscal deficit, for example, has been expended for the cost of taking these measures, which indicating that more problems could be expected if these measures being taken in a long term. Additionally, the costs of nucleic acid testing, vaccination and other activities that are required for epidemic prevention and control are also borne by the government. Under these circumstances, the government needs to adopt a more sustainable approach to restore Wuhan's economy.

The analysis of the impact of the COVID-19 on Wuhan's economy will be helpful in getting a better understanding on the destructiveness of the epidemic as well as provide experience for dealing with such public security event in the future. Based on this research significance, the author will present Wuhan's economic development since 2020 and examine the shock on it brought by COVID-19 in the following paper. After that, the economic policies adopted by the government will be evaluated according to their efforts. Finally, suggestions will be given from the author's perspective.

## 2. Wuhan's economic development since 2020

Due to what has been mentioned in the introduction, 2020 has been a year full of changes and impact to Wuhan. Facing the sudden outbreak of COVID-19 and the complex domestic and abroad environment, Wuhan's economy on the whole has been stable after overcoming many difficulties.

However, some encouraging features such as the high growth rate of cross-border e-commerce transactions were also particularly bright among the declining indicators.

## 2.1 Overall data

The GDP (Gross Domestic Product) of Wuhan in 2020 is 1561.606 billion yuan, which is 4.7% lower than the index in 2019 at constant prices. Despite the fact that the output value of the three industries still increased, the growth rate decreased significantly. Among them, the secondary industry had the largest decline percentage of 7.3%. The added value of the tertiary industry was the highest, which was 965.641 billion yuan, but it was still 3.1% lower than that in 2019.

## 2.2 Employment and income

In 2020, the number of new urban employment in Wuhan was 228.1 thousand, compared with 2019, a remarkable decrease of 5.94% can be seen clearly. By the end of 2020, the labor productivity of the whole city was 253.1 thousand yuan per person, which has also descended 3.8% from the previous year.

Moving to the income, the per capita disposable income of both urban and rural residents has both declined considerably. The figure of urban residents in Wuhan of 2020 was 50.362 thousand yuan, which was 2.6% lower than the number of the previous year; As for the number of rural residents, 24.057 thousand yuan, was also 2.9% less than the last year.

## 2.3 Consumption and price

The 2020's annual social consumption of Wuhan is not optimistic. The total retail sales of social consumer goods reached 614.984 billion yuan. Comparing to the data of 2019, a dramatic decrease of 20.9% has been showed. Taking a closer look at the consumption of different commodity forms, the retail sales fell by 15.9% to 589.112 billion yuan; catering revenue decline sharply by 66.3% with a total annual revenue of 25.873 billion yuan. However, the figures of 2020's consumption also included some increment. The most striking one is the online retail sales of physical goods of Enterprises above the limit, which increased by 7.6% and accounted for 26.0% of the total social retail sales above the limit. This figure was 5 percent higher than the number of 2019.

The change of price index in 2020 is much more complicated than that of consumption. Generally speaking, Wuhan's consumer prices has risen 2.4% compared with the same period of the previous year. In terms of specific classification, the consumer goods with significantly higher prices include food, medical care, etc., while the prices of consumer goods such as transportation, education, culture and entertainment decreased noticeably.

## 2.4 Investment in fixed assets

Wuhan's investment in fixed assets in 2020 decreased by 11.8% over the previous year. Classifying by industry, there was a fall of 15.2% in the investment in the primary industry decreased and 20.2% in the secondary industry, of which industrial investment decreased by 20.4%; Investment in the tertiary industry dropped 8.8%, of which investment in infrastructure decreased by 16.7%. Private investment declined 18.8%, accounting for 47.0% of total fixed asset investment.

In terms of real estate development, the annual investment in real estate development dropped 6.4%. Among them, residential investment decreased by 10.3%, office building investment has an increment of 19.1%, and commercial business housing investment declined 11.3%.

## 2.5 Fiscal expenditure and social security

On the whole, Wuhan's fiscal revenue decreased in 2020 while fiscal expenditure increased, which means that the fiscal deficit has further expanded. The total annual general public budget revenue fell 17.8% by 239.277 billion yuan, of which the local general public budget revenue fell 21.3% by 123.029 billion yuan. In the local general public budget revenue, the tax revenue was 104.106 billion

yuan, which declined 21.2% compared with it in 2019, while the general public budget expenditure increased by 7.5%.

On the other hand, the social insurance of Wuhan, as an important part of the social security system, has a income climbed prominently in 2020. Wuhan achieved an insurance premium income of 83.566 billion yuan, which was 8.9% higher than the income of the previous year. Among them, the premium income of property insurance was 18.241 billion yuan, which went down of 8.0%; The premium income of life insurance increased 14.8% to 65.325 billion yuan. In the whole year, the expenditure on various types of insurance compensation was 22.186 billion yuan, which showed an increase of 7.2%. Among them, the compensation for property insurance was up by 9.3% and reached 11.446 billion yuan; The compensation for life insurance was 10.74 billion yuan, which increased 5.1%.

### 2.6 Opening-up economy

In 2020, the total import and export volume of Wuhan reached 270.430 billion yuan showing an increase of 10.8% over the previous year. The total import volume of the whole year went up by 19.0% to 128.260 billion yuan; The total export volume also had an increase of 4.3% and reached 142.170 billion yuan. The import and export of general trade was 182.640 billion yuan, which had risen by 3.5%; The import and export of processing trade on the other hand decreased by 7.6% to 38.630 billion yuan. The annual import and export volume of high-tech products also increased by 7.3%, reaching 146.91 billion yuan. The figure of cross-border e-commerce transactions was very striking with a very high growth rate of 77.0%, reaching US \$331 million.

## 3. COVID-19’s impact on the economy of Wuhan

As what has been mentioned above, many economic growth indicators in Wuhan have declined to varying degrees in 2020. It is clear that the economic development of Wuhan has slowed down due to the shock of the epidemic. The aspects and extent of the impact of the COVID-19 on the economy of Wuhan will be specifically studied in the followings.

### 3.1 Overall impact

On the whole, despite the fact that COVID-19 has had a certain impact on the economy of Wuhan, it has not changed the macroeconomic pattern and trend of the whole city’s development. Therefore, there was hardly a substantial change on the medium and long-term economic development goals of Wuhan [1]. The reasons are as followings:

Firstly, the scope and duration of the COVID-19 have been effectively controlled owing to the timely prevention and control in the middle and early stage of the epidemic in Wuhan [2].

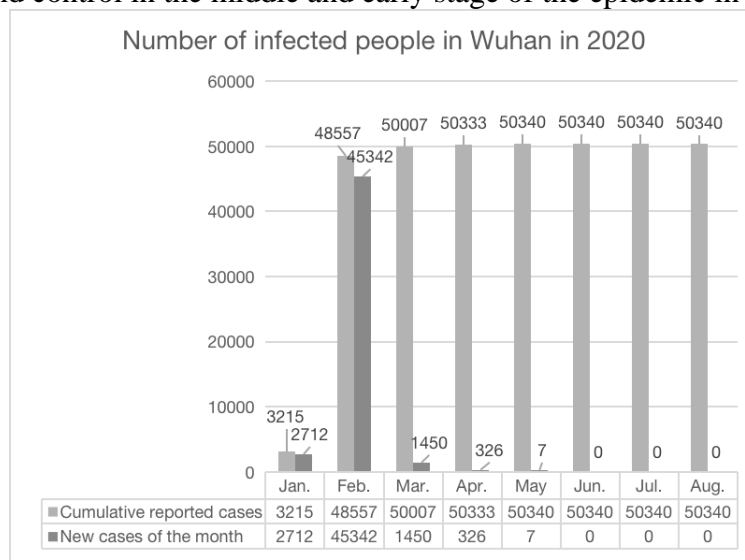


Figure 1. Number of infected people in Wuhan in 2020

It is worth noting that the duration of the epidemic and of the impact bringing about by the epidemic on the economy should be considered as two different concepts [3]. According to the table, since June 2020, the social epidemic in Wuhan has been cleared for several consecutive months, which created beneficial conditions and environment for resumption of work and production. This means that the government of Wuhan has successfully managed to reduce the impact of the epidemic on the economy to almost the shortest time. Therefore, the economic shutdown caused by the epidemic has only existed in Wuhan for a few months with limited impact.

Secondly, China's socialist system has shown certain advantages in the epidemic. After the epidemic situation stabilized, the central government vigorously allocated financial funds to Wuhan and increased financial support to help the resumption of work and production in Wuhan and to accelerate the pace of economic recovery.

Thirdly, Wuhan's strong economic foundation enables it to have a certain degree of pressure resistance facing the epidemic. As the core city in Central China, Wuhan's GDP reached 1.622 trillion yuan in 2019, ranking eighth in China. In the fight against the COVID-19, the local government has enough economic strength to cope with the sudden increase in public expenditure on health care.

However, although the epidemic has not caused a substantial damage on the macro-economic structure of Wuhan, as the outbreak center of a large-scale public health and safety incident, some aspects of Wuhan's economic development, such as pillar industries and fiscal expenditure, have still suffered a blow that can not be ignored.

### 3.2 Impact on pillar industries

#### 3.2.1 Service industry

After the outbreak of the epidemic, the tertiary industries such as catering, tourism and entertainment in Wuhan suffered the most losses. As early as 1998, the total economic output of the tertiary industry in Wuhan reached 47.632 billion yuan, exceeding the industrial output value for the first time. It can be said that with the rapid growth of the proportion of the tertiary industry in the total economy and becoming a strong economic driving force for the development of Wuhan, service industry including catering and tourism has become one of the pillar industries in Wuhan. Due to a series of epidemic prevention and control policies such as the lockdown imposed, outdoor activities of residents have been restricted, resulting in the large scale stagnation of catering, tourism, entertainment and other service [4].

**Table 1.** Added value and growth rate of tertiary industry

Year	Added value of tertiary industry (Billion Yuan)	Growth rate
2018	810.754	10.1%
2019	985.534	8.2%
2020	965.641	-3.1%

As can be seen from the above table, the added value and growth rate of the tertiary industry in Wuhan in both 2018 and 2019 showed a sharp rise and rapid growth trend. However, by 2020, the added value of the tertiary industry did not increase but decline under the impact of the epidemic, changing the previous rapid upward trend.

#### 3.2.2 Manufacturing industry

Considering the relatively complex industrial structure of Wuhan as well as the varying degrees of various industries affected by the epidemic, it is impossible to generalize the impact on the industry of Wuhan. Taking the steel manufacturing industry, one of the pillar industries in Wuhan, as an example, the epidemic has cast a shadow on its development.

**Table 2.** Annual output and growth rate of steel

Year	Annual output of steel (10,000 tons)	Growth rate
2018	1744.86	3.0%
2019	1734.96	-2.1%
2020	1534.98	-11.4%

It can be seen from the data in the table that the annual output value of steel industry in Wuhan in 2020 decreased sharply compared with the previous two years, and the annual growth rate also decreased by nearly 10%. This was attributed to the long term shutdown and shortage of raw materials under the epidemic situation [5].

### 3.2.3 Biological medicine industry

Contrary to the situation of service industry and manufacturing industry, as one of the three pillar industries in Wuhan, the production and operation of biological medicine industry has recovered in a short time as locating in the core area of the epidemic. At the same time, during fighting the epidemic, the demand for drugs produced by these pharmaceutical enterprises for improving immunity and resistance was also doubled.

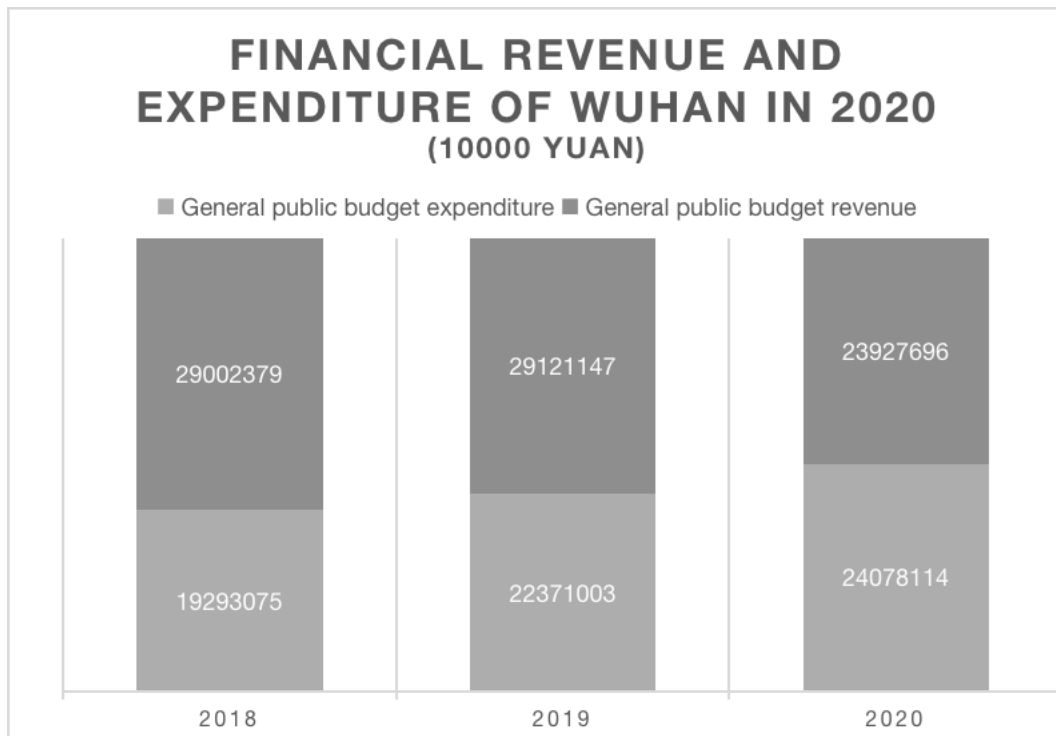
**Table 3.** Annual output and growth rate of chemical raw medicine

Year	Annual output of chemical raw medicine (tons)	Growth rate
2018	19136.00	7.9%
2019	23446.76	0.3%
2020	23721.00	0.5%

According to the data in the table, the annual output of chemical raw medicine increased by 0.5% in 2020, which was one of the few industries that achieved positive growth in output and output value in this year. This growth was inextricably linked to the large additional demand for drugs brought about by the COVID-19.

### 3.3 Impact on fiscal revenue and expenditure

For Wuhan municipal government, the further expansion of the fiscal deficit in 2020 was one of the primary impacts brought about by COVID-19. As the downward pressure on the economy continued to increase, the profit margins of Wuhan enterprises, especially small and medium-sized enterprises, have narrowed significantly, and even fell into a survival crisis. Meanwhile, the investment demand continues to shrink. This severe economic situation forced the government to adopt loose fiscal policies, which meant that the government had to face the result of the deterioration of fiscal revenue and expenditure [6].

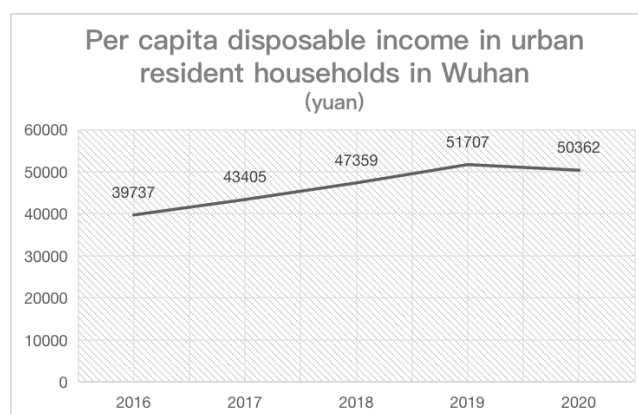


**Figure 2.** Financial revenue and expenditure of Wuhan in 2020

As can be seen in the chart, the fiscal revenue and expenditure situation in 2020 has seriously deteriorated under the influence of epidemic. From the perspective of fiscal expenditure, facing the insufficient domestic investment and consumption demand, the municipal government has further increased expenditure to boost market confidence. These expenditures included not only infrastructure investment to improve people's livelihood and stimulate growth, but also subsidy expenditure to guide investment and consumption as well as government purchase expenditure. In addition, the government also bore the costs of nucleic acid testing and vaccination related to epidemic prevention and control. As far as fiscal revenue be concerned, the government has to further reduce the pressure faced by small and medium-sized enterprises in Wuhan to help them tide over the difficulties, as well as alleviating the resulting unemployment problem as much as possible, by tax reduction. Therefore, the fiscal revenue of the municipal government has further declined in 2020 on the basis of 2019.

### 3.4 Impact on resident income and employment

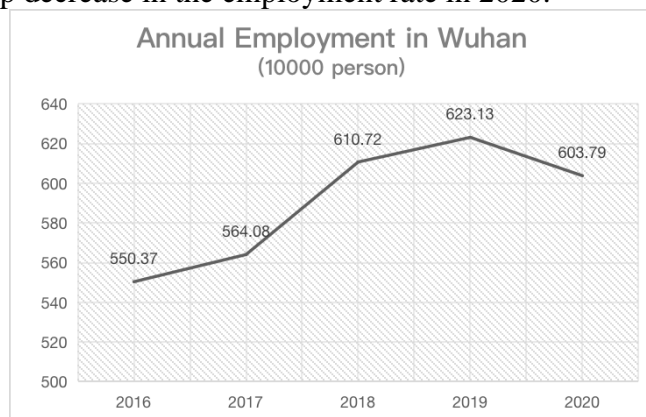
The sharp decline of residents' income in Wuhan in 2020 can be considered inevitable. When the epidemic struck, Wuhan took the lead in implementing the closed and static management of the whole city. Many companies and enterprises stopped production, resulting in many working people having no income for months.



**Figure 3.** Per capita disposable income in urban resident households in Wuhan

According to the line chart, Wuhan's per capita disposable income in urban resident households showed a strong upward trend from 2016 to 2019. However, affected by the epidemic outbreak in 2020, the disposable income changed the previous significant upward trend and showed a noticeable decline. This can be attributed to the four-month shutdown of many enterprises. Moreover, a large number of enterprises were in a state of long-run loss in the economic environment hit by the epidemic, which made it difficult for them to pay their employees on time.

The enormous loss facing these enterprises also led to the increasing unemployment in Wuhan. Local employers had to take measures such as massive layoffs to reduce expenditure, which inevitably caused a sharp decrease in the employment rate in 2020.



**Figure 4.** Annual employment in Wuhan

As the chart shown, the annual employment in Wuhan showed an abnormal downward trend in 2020. It is worth noting that the turbulence caused by the epidemic on the job market will not be limited to 2020. In fact, its subsequent impact may last for several years as the following reasons.

Firstly, fewer jobs will be provided by enterprises. Affected by the epidemic, a large number of enterprises have reduced profits or even went bankrupt. With the reduction of investment scale, the growth space of enterprises' demand for new labor force will be limited, which may lead to the imbalance of supply and demand structure in the labor market in the next few years.

Secondly, more competitors will pour into the job market. From 2020 to the next few years, fresh graduates will join the job market together with the unemployed affected by the epidemic, which means that the labor supply will exceed the normal scale of previous years in a short time, further intensifying the competition in the job market.

### 3.5 Opportunities brought by the epidemic

Despite the fact that COVID-19 has caused enormous damage to Wuhan's economy, it has also brought new opportunities to some industries. Some enterprises have gradually realized the disadvantages of offline operation in this epidemic, and therefore vigorously promoted the online development of real economy. At the same time, the state's attention to public health emergencies also makes relevant industries and departments obtain the institutional dividend of development. Take e-commerce industry as an example.



**Figure 5.** Sales and proportion of online retail in Wuhan

As can be seen from the chart, the online retail industry is one of the few industries in Wuhan to achieve positive growth in 2020. In the case of shopping outside being restricted and stagnation of some production activities, most of the demand for retail goods of the residents depended on the Internet retail industry or e-commerce in 2020. This made Many enterprises that previously focused on offline operation move their business online, which significantly increased the proportion of online retail sales in total retail sales in Wuhan. Therefore, the outbreak of COVID-19 has also brought new opportunities to Wuhan and pointed out the direction for its subsequent economic recovery.

#### **4. Treatments taken by Wuhan municipal government**

In the face of a sudden large-scale outbreak of the epidemic, the government's emergency intervention policy is often particularly important. In order to promote the stable economic growth of Wuhan after the epidemic, the local government has launched a series of corresponding measures. After a period of implementation, it can be seen that these policies have produced ideal short-term results. However, whether these policies can be implemented for a long time or can be further optimized remains to be studied.

##### **4.1 Consumer voucher**

In the period of economic depression, consumer voucher, as the future consumption payment voucher given by the government to residents in advance, can be helpful to stimulate people's consumption desire and revitalize consumption activities [7]. Therefore, In order to cope with the sluggish consumption caused by the epidemic, the government of Wuhan spent 500 million yuan to issue electronic consumption voucher to all citizens from April 19 to July 31. Additionally, Alibaba, Meituan, Tencent and other e-commerce enterprises also participated in it by issuing platform and merchant vouchers worth 1.8 billion yuan. This measure has caused both positive and negative effects. The most direct positive effects, and also the main purpose of issuing consumer voucher, was stimulating consumption and promoting economic recovery. As of July 31, 2020, more than 43 million consumer vouchers was issued, driving consumption of more than 5 billion yuan. This has achieved the goal of stimulating consumption and the economy in the short term, which has injected a booster into the economic and social recovery of Wuhan.

Secondly, the policy of issuing consumption vouchers had a targeted stimulating effect on the service industry severely hit by the epidemic, especially the small and medium-sized enterprises. According to the statistics of Meituan platform, the average transaction volume of merchants participating in the activity was 3.3 times that of merchants not participating in the activity, and the difference between the transaction volume of small and medium-sized merchants participating in and not participating in the activity was as much as 4.5 times.

Finally, the policy indirectly promoted employment. Issuing consumption vouchers was essentially the government's use of financial transfer payment to stimulate residents' consumption will and actual consumption behavior, and then to promote the production link to return to normal as soon as possible. The employment posts of the whole society have been restored and increased after the production of Wuhan's enterprises, especially small and medium-sized enterprises, were actively resumed.

However, these short-term achievements came at a price. First of all, issuing consumption vouchers caused greater pressure on local finance. The issuance of consumer vouchers in Wuhan mainly depended on the allocation of local finance. When the fiscal deficit has expanded sharply under the impact of the epidemic in 2020, this policy expenditure has undoubtedly worsened the fiscal revenue and expenditure situation. Moreover, issuing consumer vouchers has exacerbated the unfairness in market competition. In the process of issuing consumer vouchers, large e-commerce enterprises such as Alibaba, Tencent and Meituan have undertaken almost all price reduction activities. In this case, the stimulated consumption of users was further concentrated on these giant platforms of the whole

industry. This has further increased the market share and the capability of controlling the industry of these platforms, resulting in the intensification of unfair market competition.

To sum up, the measures of Wuhan municipal government to issue consumption vouchers directly stimulated the economy in the short term. However, considering the fiscal deficit and the intensification of unfair market competition, this policy is not suitable for long-term use.

#### **4.2 Preferential tourism policy**

As the largest tourist distribution center in Hubei Province, Wuhan's tourism industry, hotels, cruise ships and other surrounding industries suffered an unprecedented blow during the epidemic. In order to revive the tourism industry as soon as possible, the municipal government has adopted many measures, such as free tickets for some scenic spots and subsidies for travel agencies, which achieved remarkable results.

The most direct positive effect of this series of preferential tourism policies was accelerating the recovery of tourism in Wuhan. The implementation of this policy has enabled the tourism market in Wuhan to recover continuously, and played a key role in attracting tourists from inside and outside the province as well as stimulating the vitality of the tourism market [8]. Meanwhile, Wuhan's catering, accommodation, transportation and other related industries have also recovered rapidly due to the recovery of tourism.

Furthermore, the preferential tourism policy has also played a positive role in upgrading the service quality of the scenic spot. In 2020, the major scenic spots in Wuhan were successively reopened while strictly complying with the new requirements for epidemic prevention and control, and adopted relevant measures such as appointment, ID registration, temperature measurement, flow control and so on. With the increase of tourists, these scenic spots not only improved the service quality, but have also successfully explored a development path of tourism in the epidemic era.

However, there were also certain problems to be solved in the implementation of the preferential tourism policy in Wuhan. Firstly, these policies themselves lack detailed content, which led to difficulties in specific implementation. Most of the preferential tourism policies in Wuhan were too macro as paying attention to guidance and integrity, which made it difficult to combine the policies with reality. The further implementation of relevant policies by scenic spots and travel agencies has been hindered by the lack of specific actual research as well as relevant data and materials.

In addition, there has been some homogenization problems in Wuhan tourism industry. Many tourism projects lack their own characteristics as well as high-quality and innovative services that can meet the needs of the public. In the case of economic downturn and low consumption willingness of residents caused by the epidemic, the original service level of some scenic spots or travel agencies could hardly attract a large number of tourists [9].

In summary, the preferential tourism policy in Wuhan has achieved certain positive results on the whole, but the problems such as policy being too macro and serious homogenization in the industry still need to be solved.

### **5. Policy suggestions**

After examining the impact of the COVID-19 on Wuhan's economy and the treatments taken by municipal government, the following policy suggestions will be put forward to promote the healthy, rapid and sustainable development of Wuhan's economy after the epidemic.

#### **5.1 The moderately active fiscal policy should continue to be implemented in at least the next three years**

Although Wuhan's fiscal deficit has been further expanded after the epidemic outbreak, it is still necessary for the government to use fiscal expenditure to play a bottom-up role in the environment where small and medium-sized enterprises are facing operational difficulties and the unemployment rate continues to rise.

In terms of supporting enterprises, the government should continue to provide some industries and enterprises damaged during the period affected by the epidemic with financial subsidies, and appropriately reduce the value-added tax of transportation, tourism, catering, accommodation and other hard hit industries. More fiscal and policy-favoring support for small and micro enterprises to reduce their operating costs should also be proceeding [10].

In terms of people's livelihood, the government should further reduce the social security contribution rate and provide low-income families and poor people with certain economic subsidies to reduce their living burden. At the same time, the government of Wuhan should also formulate policies to create jobs and actively provide employment related information services for the unemployed in order to curb the further rise of the unemployment rate.

### **5.2 Change the mode of economic development by increasing support for emerging industries.**

Compared with Wuhan's traditional industries and some traditional service industries such as catering, tourism and entertainment, a certain number of emerging industries, e-commerce for example, have achieved positive growth in the epidemic and become one of the important driving forces of Wuhan's GDP in 2020. These industries can be used as key industries in Wuhan after the epidemic to activate the economy. Therefore, the municipal government should focus on e-commerce and other industries less affected by the epidemic. Meanwhile, the government can accelerate the online transformation of some industries, such as increasing investment in emerging economic fields such as online education and telemedicine, so as to continuously meet the consumer demand of the people under the epidemic circumstance.

### **5.3 The problems arising from the issuance of consumption vouchers shall be solved in time.**

Firstly, the government should strengthen the supervision of the capital budget on issuing consumer vouchers. The government may include the funds of consumption vouchers into the special funds or reserve funds of the local financial budget. The issuance of consumption vouchers shall be based on the full measurement of regional fiscal revenue and expenditure balance, and the policy shall be implemented scientifically and reasonably in the short term to ensure the safe and efficient use of financial funds.

Secondly, the government should resolutely safeguard the market environment of fair competition when issuing consumer vouchers. Efficiency and fairness must be taken into account by avoiding issuing consumption vouchers on a single platform, setting a zero threshold for merchants participating in the use of consumer vouchers, and prohibiting e-commerce platforms or other third parties from taking the opportunity to set a threshold to reduce the profits of small and medium-sized merchants. These measures can be helpful to maintain a fair and just market competition environment and protect consumers' freedom on choice.

### **5.4 The preferential tourism policy should be further specified according to the reality.**

Firstly, the municipal government should improve the tourism policy system and coordinate the interests of all subjects. A clear and detailed policy system can provide guidance and direction for the smooth implementation of Wuhan's preferential tourism policy as well as providing policy guarantee for all participants and stimulating the vitality of all forces. Therefore, it is necessary to strengthen the construction of the policy system and clearly standardize the participation procedures, contents and methods of various subjects in the form of laws and regulations to provide authoritative and legitimate protection for the development of local tourism.

Secondly, the government should innovate and develop tourism according to local conditions and highlight local characteristics. In recent years, the tourism industry in Wuhan has developed rapidly, but the homogenization problem is getting increasingly serious, which makes it difficult to meet the various expectations of tourists. The government should encourage scenic spots to develop tourism in combination with local characteristics, such as deeply excavating local history and culture, actively

carrying out innovation and inheritance, and retaining their own characteristic culture and natural scenery, in order to shape a unique local tourism image.

## 6. Conclusions

The outbreak of COVID-19 was an unexpected catastrophe to Wuhan. Fortunately, the government of Wuhan strictly abided by the epidemic prevention policy formulated by the central government, which has brought the situation in Wuhan under control within four months. After examining the overall indexes and their changes of Wuhan in 2020, it has been noticed that the medium and long-term economic goals and macroeconomic pattern of Wuhan have not changed substantially after the outbreak of epidemic. However, the epidemic still has a significant impact on some aspects of Wuhan's economy, resulting in the decline of the output value of pillar industries, the expansion of fiscal deficit, the reduction of residents' disposable income and the rise of unemployment rate. Some measures, such as issuing consumer vouchers and introducing preferential tourism policies, have been taken by Wuhan municipal government to solve these problems and revive the economy. While achieving certain positive results, these treatments can also be further improved from the aspects of fiscal expenditure plan and improving industrial competitiveness. Additionally, there were industries such as e-commerce and biological medicine in Wuhan achieved positive growth in the epidemic, which stands a possibility of being the core driving force for economic recovery and development after the epidemic.

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