Research on the Chinese economic development and government policy under Covid-19—Based on the economic policy implemented by Shanghai

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Abstract. COVID-19, a novel Coronavirus SARS-CoV-2, has caused a grievous disturbance to society and global economies since the end of 2019 it was first found in China. For example, this research mainly focuses on the impacts COVID-19 has taken on the Chinese economy and the development of the Chinese economy as a developing country. Based on the financial loss from the resurgence of the Shanghai epidemic and the government's actions to get rid of it (fiscal, monetary, and physical) after they first stopped the spread of the virus. This study also compares the epidemic prevention policy and citizens' altitude toward COVID-19 between China and other countries to figure out why China can quickly recover from the COVID attack. This work is essential for those policymakers and investors in the world because of the growing influence of China. It is timely because most countries are still suffering from both physical and financial threats of COVID-19.

Keywords: Chinese economic development; Government policy; Covid-19; Shanghai.

1. Introduction

1.1 Research background

COVID is a group of viruses that cause illnesses such as cold, severe acute respiratory syndrome (SARS), and Middlcausee East respiratory syndrome (MERS). The virus is known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Coronavirus disease 2019 is the name given to the disease it causes (COVID-19). The World Health Organization (WHO) declared the COVID-19 outbreak a pandemic in March 2020 [1]. Most patients with this virus experience respiratory difficulties, fever, and illness after 2 to 14 days. The symptoms of the novel COVID-19 infection vary drastically from person to person. Although this infection is felt from the inside out, most critically unwell people are older or have other significant and long-lasting ailments. Patients with respiratory disorders, such as influenza or other ailments, are more at risk from this virus [1].

The first COVID-19case was detected in December 2019. The deadly virus that has infected more than 580 million people worldwide. Although the death rate is only around one percent, by August 2022, more than 6.4 million people have died from the deadly virus [2]. The World Health Organization even thinks the actual death toll is higher. As such, it has a wide range of negative impacts on people's lives and health. Not only the health sector, but COVID-19 has impacted economic activity around the world. The COVID-19 pandemic has severely impacted the performance and activity of virtually every sector of the economy (including tourism, service industry, catering service, etc).

The outbreak of Covid-19 has brought different kinds of impacts to the world. Global medical problems and financial troubles for developing and developed countries. Based on statistics, Covid-19 has greatly affected GDP. From the perspective of total GDP data, there are 16 countries with GDP exceeding 1 trillion US dollars in 2020, namely the United States, China, the United Kingdom, etc. Among the 16 trillion-dollar GDP clubs, China ranks second with 101.60 trillion yuan. About $15.58 trillion [3]. In addition, China is the only major economy in the world with positive GDP growth [4]. From the perspective of imports and export, according to the report of the United Nations Conference on Trade and Development, the value of global trade in goods in 2020 drop by 5.6% year on year, which is the largest year-on-year decline in trade in goods since the international financial crisis in 2008. Compared with goods, the epidemic has hit trade in services harder.

How did a health problem translate to an economic crisis? Two reasons appear in front of the world. First, as the virus spread, it promoted social withdrawal, which closed down financial markets, corporate offices, businesses, and events. These isolation practices were recommended by the World Health Organization (WHO). Thus, emerging nations also used them. Because social connection was prohibited in all countries during this epidemic, the services industry was severely harmed. As a result, many of the labor force—particularly those working in the transportation and tourism industries—became unemployed. Additionally, the manufacturing sector was shut down, which led to job loss. Due to this circumstance, the demand and supply processes were significantly impacted. Secondly, according to Ozili's research [4], the volume of economic activity and the key stock market indices' closing, opening, low, and high prices have been significantly impacted by the rise in lockdown days and monetary policy decisions, and overseas travel restrictions. Additionally, it was discovered that increased COVID cases and fatalities had a major impact on worldwide inflation, unemployment, and the global energy commodities index.

As the COVID-19 pandemic initially hit the country, China was also the first country to recover and resume economic activity. China is regarded internationally as the origin and carrier of the coronavirus, and many Chinese abroad are discriminated against. Why can China recover from Covid-19 quickly? Unlike some western countries still suffering from economic and death rates in 2022. Based on the research group, the most direct reason is that Chinese citizens think life is above 'freedom'. Americans are still debating the usage of masks, even though a few hundred thousand people die every day because of Covid-19. Unlike US., the Chinese do not chase 'freedom' at the expense of life [5]. Blocking communities, staying home for more than two months, doing Covid-19 tests daily, etc. These happened in Shanghai in 2022. Health and economic policy release pressure on small firms that closed during the epidemic by cutting rent and subsidizing civilians who got a Covid-19 vaccine. At a macro level, fiscal and monetary policy are considered.

1.2 Research gap & research framework

The study looks at China's economic development and policy enforcement through China's response and policy to the outbreak, which is the overall goal of the study. The study divides the epidemic into three stages, the start of the epidemic in 2020, the economic relief in 2021, and the recurrence of the epidemic in some parts of China in 2022. Analyze the economic problems of each epidemic period, whether the final policy is effective, and its negative effects. It mainly uses the economic measures (including fiscal policy, monetary policy, etc.) taken by China when the COVID-19 in 2022, one of the most important cities in China, Shanghai, is used for empirical estimation. Economic performance is measured by different indicators, but this study primarily uses policies that moderate GDP growth. Most studies are limited to observing the epidemic's impact on the economy [6]. Still, this research focuses more on China's economic development strength, the effectiveness of policies, and their implementation through impacts and policies.

First, three stages of Covid-19: 1. the beginning of Covid-19 2020; 2. Recovery of the economy in season 4 of 2020 and 2021; 3. Recurrence of the epidemic in some parts of China in 2022

Second, the impact of Covid-19 on the Chinese economy (in every aspect)

Third, China's economic policies toward the impact caused by covid-19 from 2019-2021

Fourth, effectiveness of the policies made by China

Fifth, focus on the rebound of the severe epidemic in Shanghai in 2022, the short-run influence of COVID-19 on Shanghai and the national economy, and the economic measures taken by the government.

Finally, through the experience of Shanghai, study China's economy and policies, and as a developing country, why China can recover the economy and slow down the epidemic earlier and faster than other countries and even more efficient than the world's first developed country - the United States.

1.3 Case study

UN expert Liang pointed out three reasons for China's relatively rapid economic recovery after the pandemic. 1. The epidemic measures have been successful; 2. The economy is resilient; and 3. Effective macro policies.

Liang said: "Successful epidemic prevention measures are the foundation of economic recovery, China's epidemic prevention measures, the resumption of work and production effect is good, laid the foundation for rapid economic recovery. Liang also said China's unique strengths in manufacturing, the digital economy, international trade, and infrastructure. That makes the Chinese economy resilient. In addition, in the face of the epidemic's impact, the Chinese government has adopted fiscal, monetary, and other macro policies of appropriate intensity and scale, providing effective support for economic recovery [7]. This is a conclusion based on facts. The following are the points and actual data.

1.3.1 The epidemic measures have been successful

1. Key Response Measures

The measures of "centralized isolation and medical observation + home health monitoring" shall be implemented for the secret contacts. Therefore, the contact person must go to the centralized isolation point for medical observation. At the same time, the staff should be strictly managed, requiring vaccination before they can go to work, centralized accommodation, closed management, and high-frequency nucleic acid testing during work. The centralized isolation points will prevent cross-infection through the above measures, the risk of epidemic spillover, and safety management accidents. After the contact personnel arrives at the centralized isolation place, they should have single rooms, temperature measurements every morning and evening, and regular nucleic acid testing.

2. Financial effect

For decades, Shanghai's GDP has been the highest among Chinese cities. In 2021, its GDP reached 4.32 trillion yuan, up 8.1 percent yearly, accounting for 3.8 percent of the national GDP. The local government revenue accounted for 7 percent of the national GDP. Shanghai accounts for 20% of China's foreign trade and 14% of its foreign direct investment. Under the requirements of epidemic prevention and control, some enterprises and factories will suspend production, and the flow of personnel has decreased significantly. The manufacturing, service, tourism, and catering industries face great difficulties. So, a post-pandemic lockdown in Shanghai would have a more severe economic impact than most of China. Moreover, the shutdown of Shanghai and the "lockdown" of ports will have a huge impact on China's import and export trade, and the impact on the global supply chain is likely to be greatly increased.

1.3.2 The economy is resilient

The strong resilience of the Chinese economy stems from its remarkable institutional advantages and strong supply capacity. Public ownership plays a dominant role, economic entities under different forms of ownership develop together, distribution according to work plays a dominant role, and multiple modes of distribution coexist. Basic socialist economic systems such as the socialist market economy demonstrate the advantages of the socialist system. It is also a great creation of the Party and the people to adapt to the development level of productive social forces in the primary stage of socialism. The organic integration of the socialist system and the market economy will stimulate the vitality of various market entities, liberate and develop the productive forces, and promote the organic integration of efficiency and equity. Further, the advantage of China's system lies in its ability to effectively translate into the efficiency of economic governance. The virtuous circle of production, distribution, exchange, and consumption in the national economic cycle can be realized through unimpeded domestic circulation. A high-level dynamic balance can be achieved between aggregate social supply and aggregate social demand. China's economy reached 114.4 trillion yuan in 2021, making it the world's second-largest economy. China is also the largest trader of goods, the largest holder of foreign exchange reserves, and the world's largest industrial country. A strong material foundation not only lays the foundation for strong economic resilience but also forms a strong resilience of human resources, industrial system, and scientific and technological strength.

1.3.3 Effective macro policies

The most striking difference between the performance of the Chinese market and developed markets over the past decade is that the high volatility of all assets in the Chinese market provides an excellent environment and source of income for macro strategies. The fundamental reason behind this is inseparable from the fact that the Chinese market is still in the process of development and the investor structure is still in the transition stage from retail to institutional. Therefore, the alpha returns that the Chinese capital market can tap are much higher than those of developed countries, and thus the macro strategy is more effective. So, this supports his conclusion that China's economy is recovering faster than other countries.

2. Method

The study's main purpose is to analyze China's economic development through the policies China will implement toward Shanghai when the epidemic rebounds in 2022. We collected monthly data from January 2019 to June 2022 from the World Health Organization, World Development Indicators (WDI), and National Bureau of Statistic.

2.1 Secondary data comparison

Specifically, as research group divides COVID-19 into three different stages: 2020(the beginning of COVID),2021(the continuation of COVID), and 2022(the reoccurrence of COVID) and collects numerous useful and professional secondary data on the economic statistics of each COVID phrase in Shanghai online. The Chinese government will formulate different economic policies according to different economic situations, the severity of the epidemic, and different cities. Therefore, in the three stages of the epidemic in China, there will be different economic policies to deal with different degrees of economic failure. We compare policies and recessions in each period through a comparative analysis of economic data (including GDP, per capita GDP, import and export, business failure rate, low business failure rate, government policies to relieve business pressure, etc.). Compare the data of the three periods vertically to analyze the policies of the Chinese government and the level of China's economic development. Based on the Diffusion effect, everything is corresponding. An initial factor change will lead to corresponding changes in other factors. We can find the relationship between the economies through the data changes and then use the relationship to understand the Chinese economy deeply.

2.2 Case study

In recent decades, Shanghai has become one of the most important cities in China. In early 2022, the epidemic has brought Shanghai under control for the second time, with tens of thousands of new cases added every day. Most residents are quarantined at home, and the community has been blocked for nearly two months. Shanghai shut down. The research group takes Shanghai as the major case, not only because Shanghai is severe in Covid-19 but also because Shanghai is Important to China. The research group collected data on Shanghai and its policies. On May 29, Shanghai formulated the Shanghai Action Plan for Accelerating Economic Recovery and Revitalization. In formulating policies, the Shanghai government has prioritized protecting market entities. Various approaches have been implemented on top of each other, and the comprehensive effects of these policies have been fully leveraged to support and help enterprises of all kinds, tiny, medium, and micro enterprises in difficulties, to tide over difficulties.

Research stands on comparing the policy with other countries horizontally (like other developing countries and developed countries). Based on the comparison, the Chinese analysis concept of governing a country. The comparison will be like: Compared with the United States, the epidemic is serious, but Wall Street in New York has never been shut down. Why? The United States cannot afford the economic losses caused by the shutdown of Wall Street (New York); why can China? Shanghai is as important to China as New York is to America.

3. Result

3.1 The resumption of Shanghai enterprises

After the outbreak of the epidemic in 2020, China introduced a series of policies for enterprises and stabilized jobs. The study found that under the implementation of the policy. However, most enterprises were hit in the early stage of the epidemic. By the third quarter, the production and operation of various enterprises had recovered steadily, and the operating pressure and labor concerns brought about by the epidemic had gradually eased. The scale of employment has remained stable, and the resumption of work and production is proceeding orderly. Moreover, the revenue of enterprises has gradually recovered, and the development of enterprises has been stable and improving.

According to the research, in terms of employment situation, compared with the end of 2019, 48.71% of the enterprises employed fewer workers in July, 24.84% of the enterprises kept the same employment scale, and 26.45% of the enterprises increased their employment scale.

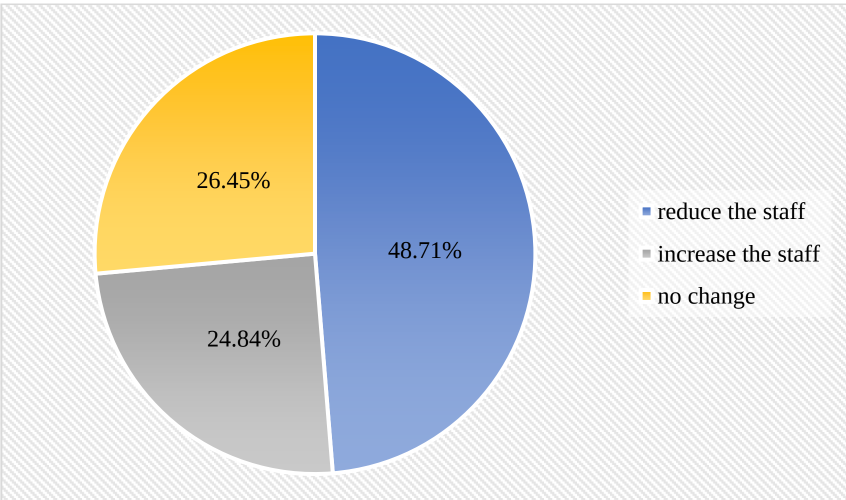

Figure 1. Changes in the scale of employment of enterprises in July

Only 10.6% of the enterprises with a reduced employment scale reported staff reductions in the first and second quarters of 2020. This indicates that under the epidemic background, most enterprises did not take the initiative to lay off employees to reduce operating costs. Judging from the situation of resumption of work, the enterprise's overall degree of resumption of work is relatively high. 80.97% of the surveyed enterprises have resumed normal employment by August, and another 8.71% of the enterprises have resumed employment at 80% to 100%, and only 10.32% of the enterprises have resumed work below 80% [8].

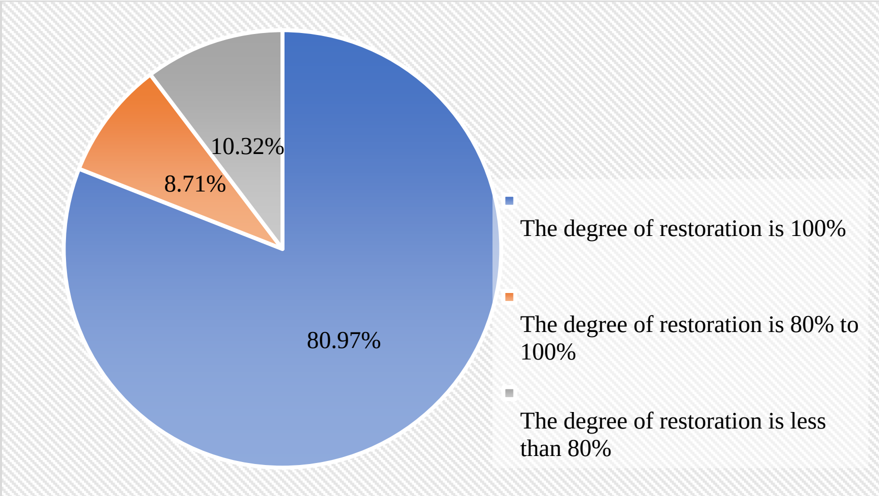

Figure 2. The degree of restoration of enterprises till August

In 2022, the epidemic swept again, and in March, Shanghai became the hardest hit area. This round of the shanghai epidemic has been around for more than three months. With the implementation of various relief policies in June, the resumption of work, production, and business in Shanghai has been greatly accelerated. On May 29, Shanghai issued the “50 Items” for economic recovery and revitalization. After that, all relevant departments and districts in Shanghai took quick action to formulate and release supporting implementation rules and make every effort to implement the policy [9].

Since the “50 Articles” release, about 90% of the issues involved in the policy have been issued with supporting rules or established working mechanisms. All relevant departments have formulated and issued more than 130 detailed implementation rules in this field, and each district has issued 30 regional policies. In terms of all-out efforts to assist enterprises in bailouts, the implementation of various policies and rules of “remission, reduction, and subsidy” has been accelerated. The “50” plus “21” policies will reduce the burden on market players by more than 300 billion yuan throughout the year. For example, large-scale value-added tax refunds have covered 62,000 taxpayers from April 1 to May 31, and the new tax refund amount has reached 46.64 billion yuan, ensured the continuity of corporate cash flow and smoothed the production chain of enterprises. Providing financial support for enterprises to resume work and production and financial support for epidemic prevention and supply. In terms of financial relief, several commercial banks and policy banks have launched loans to help enterprises, with a cumulative amount of more than 500 billion yuan. Shanghai Financing Guarantee Center expanded the coverage of loan renewal without principal repayment, promoted the “batch guarantee” model, accelerated business acceptance, approval, and lending, and implemented the policy of low guarantee rate. From January to May, the total guaranteed loan amount was nearly RMB 30 billion. Yuan, a year-on-year increase of 36.9%.

3.2 The Comparison of China and the United States

The US and China are the world’s two largest economies in nominal terms and at purchasing power parity. The United States ranks first in nominal terms, while China ranks first in purchasing power parity after surpassing the United States in 2017. As of 2021, their combined GDP in nominal and PPP terms accounted for 41.89 percent and 34.75 percent of global GDP, respectively. The pandemic is raging in the year’s first half due to global inflation in 2022. The contrast between China’s and America’s GDP is huge in the year’s first half. In the first half of this year, US GDP reached $12,269.8 billion (USD), a new record and 10.7 percent growth compared with $11.08 trillion in the first half of last year. But that figure comes on top of high inflation. The US inflation in 2022 is the most serious in nearly 40 years. It can only divert the rising prices and social crisis brought by domestic inflation through continuous interest rate hikes, even four consecutive interest rate hikes in a short period. By comparison, China's GDP totaled ￥56,264.2 billion yuan (RMB) in the first half of the year, a lower growth rate than the United States.

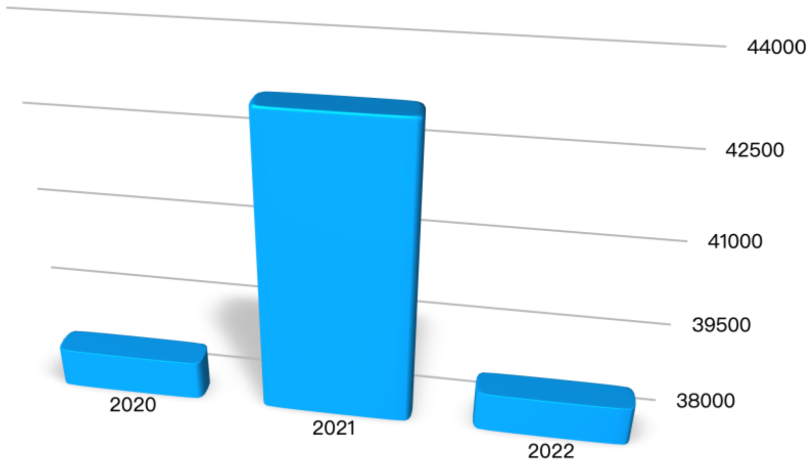

Figure 3. Shanghai's GDP annually (billion yuan)

In 2022, the epidemic will remain the same, and the policies of the United States and China against the epidemic are very different. The comparisons are staggering: The US has 379 times as many confirmed cases and 193 times as many deaths as China. According to Johns Hopkins University, as of June 7, 2022, there were 84.996 million cumulative cases and 1.009 million cumulative deaths in the United States. China's 31 provinces, autonomous regions, and municipalities directly under the central government and the Xinjiang Production and Construction Corps reported 224,000 confirmed cases and 5,226 deaths. The United States is treating it like the big flu, and there is no public health protection. And the lack of coordination between parties, federal and state departments, and even the practice of wearing masks. Compared with China, very effective joint prevention and control measures have been implemented in the early stage of the epidemic. Every case in China must be promptly sent to a hospital for treatment, and every close contact must be centralized and isolated following the law, which has cut off the chain of transmission very early. China is implementing a dynamic COVID-Zero strategy alongside mass vaccination. Once the epidemic becomes serious in a city, a "lockdown" policy is implemented.

4. Discussion

4.1 Comparative Analysis

The primary purpose of our study is to investigate the development of the Chines economy base on the policies implied in Shanghai in 2022. The tables show the different financial situation between Shanghai, China, and important cities in other countries since the beginning of the Epidemic.

Table 1 Table 2 Shanghai's GDP and Shanghai's GDP per capita

Table 1. Three Scheme comparing

	2020	2021
Shanghai GDP annually (billion yuan)	3870.05	4321.485
Shanghai GDP per capita annually (yuan)	159400	173800

Table 2. Shanghai's GDP of 2022 first half year

	2022 first half	Increased year-by-year
Shanghai GDP annually (billion yuan)	1934.93	-5.7%

Table 3. New York's GDP and New York's GDP per capita (New York GDP of 2022 Q1 is 1,931,538.8 dollar)

	2020	2021
New York GDP annually (billion dollar)	1796.422	1853.926
New York GDP per capita annually (dollar)	89131	93463

Based on the figures above, Shanghai is one of my country's most important first-tier cities. It is also an internationally renowned economic, financial, trade, and shipping center. It plays an extremely important economic and strategic role in China, and its economy even plays an important role in the economic development of other cities in China. In 2001, China successfully joined the World Trade Organization, which means my country will officially enter the international community. So, what was the development of Shanghai's economy in 2001?

According to relevant statistics, Shanghai's GDP output in 2001 was only 560 billion yuan, but the growth rate was as high as 10.4%. It can be seen that although the output of Shanghai's GDP in 2001 was low, its development momentum should not be underestimated. In addition, the development of the primary, secondary and tertiary industries in Shanghai in 2001 was relatively stable, among which the output value of high-tech industries also reached 167.143 billion yuan, an increase of 28.4% compared with 2000 (www.stats.gov.cn).

As an internationally renowned financial center, New York's GDP output in 2001 reached 4.06 trillion yuan, exceeding my country's Shanghai area by a full 3.5 trillion yuan(www.stats.gov.cn). It has to be admitted that although Shanghai's economic prosperity had already taken shape at that time, compared with New York, the world's top three super metropolises, Shanghai was still in a relatively inferior position.

After 20 years of precipitation, Shanghai's total GDP in 2021 will be 4,321.485 billion yuan, an increase of 8.1% compared with 2020. The total GDP in 2021 exceeded 400 million yuan, setting a new record for Shanghai's GDP output. Among them, the GDP output of the tertiary industry is the largest, accounting for more than 70% of the year's total output. New York's GDP output in 2021 is 7 trillion (yuanwww.osc.state.ny.us), only 2.68 trillion yuan more than Shanghai's GDP output. Compared with the gap in 2001, it has narrowed several times. This also means that in the past 20 years, Shanghai's GDP has grown rapidly, even faster than New York's GDP.

This also shows that China's economy is growing rapidly. If there were no outbreaks, China would continue to rise steadily. Taking Shanghai as the epitome of China, the epidemic's impact on the Chinese economy is greater than the impact on the US economy. According to Figure 3, Shanghai's economy had been greatly affected by the rebound of COVID-19 in 2022. Some of China's policies are holding back China's economic development.

4.2 Analysis of Policies

4.2.1 Epidemic Prevention and Control Policy

On March 1, in the current round of the epidemic in Shanghai, the first local infection without a source of transmission appeared. In just one and a half months since then, the epidemic in Shanghai has surged exponentially. On March 28, Pudong, Punan, and adjacent areas first implemented global static management. On April 1, the Puxi region implemented global static management. On April 13, the epidemic peaked, with more than 20,000 new local infections in a single day.

From 00:00 on June 1, Shanghai will resume orderly access to residential quarters, public transportation operations, and motor vehicle traffic. Since then, it has been 61 days since the whole city of Shanghai pressed the pause button.

Compared with other countries, China's extreme epidemic prevention and control measures have effectively controlled the epidemic's development, but there are also many disadvantages. For example, the cost of completely blocking all the communities is too high, and the government is not only responsible for the necessities of the people in the blocked areas but also bears the financial burden of stopping any commercial projects in the entire city and even conduct COVID testing for the entire city for free. These have held back China's economic development for more than sixty days.

4.2.2 economic policies

After June 1, Shanghai generally recovered. Governments have formulated policies to help recover the economy of China's most important city.

1. Reducing the tax burden of various types of enterprises

Implement large-scale VAT credits and refunds. Implement a large-scale tax refund policy for residual VAT credits, and give priority to small and micro enterprises. For small and micro enterprises and individual industrial and commercial households that pay taxes following the general tax calculation method, the remaining tax credits. A one-time full refund will be made before the end of June 2022, and the incremental tax credit will be refunded in full monthly from April 1, 2022.

Extend the tax declaration period. For taxpayers who file monthly, the March 2022 tax declaration period will be extended from March 15 to March 31. Due to the epidemic's impact, it is still difficult to make declarations within the March 2022 tax declaration period. Users may apply to the tax authority for an extension of the declaration in accordance with the law.

2. Rent relief in Shanghai

Small and micro businesses, as well as individual industrial and commercial families, may have their rent reduced or exempted. In 2022, the rent for small and micro businesses as well as individual industrial and commercial households that rent state-owned homes to conduct production and business operations would be waived for three months. Their commercial operations will be significantly impacted by the execution of the epidemic prevention standards, or they will be identified as the administrative regions of the streets and towns where the epidemic high-risk areas are located in 2022. 6 months' worth of rent will be waived over the course of the year, plus an additional 3 months.

3. Increase financial support

Strengthen the support for the funding guarantee first. Promote government financing guarantee institutions to offer financing and credit enhancement support for qualified micro, small, and medium-sized enterprises and individual industrial and commercial households, fulfill compensation obligations promptly in accordance with the law, assist enterprises that have been significantly impacted by the epidemic in renewing their insurance and renew loans, and increase support for those impacted by the epidemic. raise the scale of funding guarantees, better the tolerance for guarantee risks, and influence how much support individuals and businesses give to start-up guaranteed loans.

Second, implement the policy of discount interest rates for difficult enterprises. Use the existing special support funds to help enterprises in difficulty in the retail, transportation, and other industries that are greatly affected by the epidemic

Third, increase support for inclusive finance. Guide financial institutions to increase inclusive small and micro-loans and prioritize supporting difficult industries, especially small and micro enterprises, and private enterprises.

Fourth, promote financial institutions to reduce fees, give profits, and play the role of insurance risk protection. Give play to the role of reforming the interest rate quoted in the loan market and promote the decline in the financing costs of small and micro enterprises.

4. Aid enterprises in stabilizing their jobs

First, continue to implement the policy of reducing unemployment and work-related injury insurance premiums.

Second, implement policies for stabilizing and expanding jobs, such as training subsidies, entrepreneurial support, and return of labor union funds. Encourage enterprises to carry out vocational skills training for employees, conduct online vocational training related to the unit's main business for employees of various enterprises and social organizations affected by the epidemic, and provide online vocational training in accordance with regulations subsidy.

Third, support and standardize the development of new forms of employment. Relying on the public recruitment platform provides accurate services for employers and job seekers and efficiently promotes job matching.

Fourth, support the recovery and development of difficult industries

Implement relief and support measures for the catering and other life service industries, and reduce online operating costs such as service commissions, store deposits, publicity, and promotion for small and micro enterprises and individual industrial and commercial households.

Those policies above have played an important role in the recovery of the Shanghai economy. There is something beyond the economy's recovery: China's economic development. After a 60-days-block, the government immediately reacted to the situation and maturely formulated appropriate policies.

4.3 Public opinion survey

There is a relationship between the recovery rate and government and people's reaction and attitude toward COVID-19.

4.3.1 Citizen reaction

The research group has assumed that there is a potential relationship between the government (people)'s reaction toward COVID-19 and the recovery rate of COVID-19. According to the comparison, the vaccination rate in China is the highest of all the countries.

Figure 4. Vaccination of China (information from news.google.com)

Figure 5. Vaccination of US (information from news.google.com)

Since 2020, the world epidemic has never been completely over, but most people have relaxed their vigilance against him, and the United States has even completely lifted the quarantine policy.

According to Figure 5, masks have always been selectively worn in most countries. The mask-wearing rate in America during the most serious period of COVID-19 is the lowest of 2020. But in China, mask-wearing is a must, and those who do not wear masks are prohibited from entering and leaving public places. After many countries announced that they would coexist with the virus, China has maintained its epidemic prevention and control rules. The Chinese people also actively cooperated. During the outbreak in Shanghai in 2022, all of them were locked at home for more than 60 days. The people of Shanghai actively cooperated with the management, so the epidemic situation was cleared in the shortest time. At the same time, at the beginning of 2020, when the epidemic was at its worst, all Chinese people were locked in the community and prohibited from going out. Wuhan even blocked the city, leaving no chance for the epidemic. After the vaccine was rolled out, the Chinese people scrambled to get vaccinated. According to Figure 6, the Chinese have achieved a vaccination rate of 90%, and the remaining 10% are mostly patients with underlying diseases or older people who are unsuitable for vaccination. In comparison, the vaccination data in the United States is less than 70%. This is also why China can quickly get out of the epidemic.

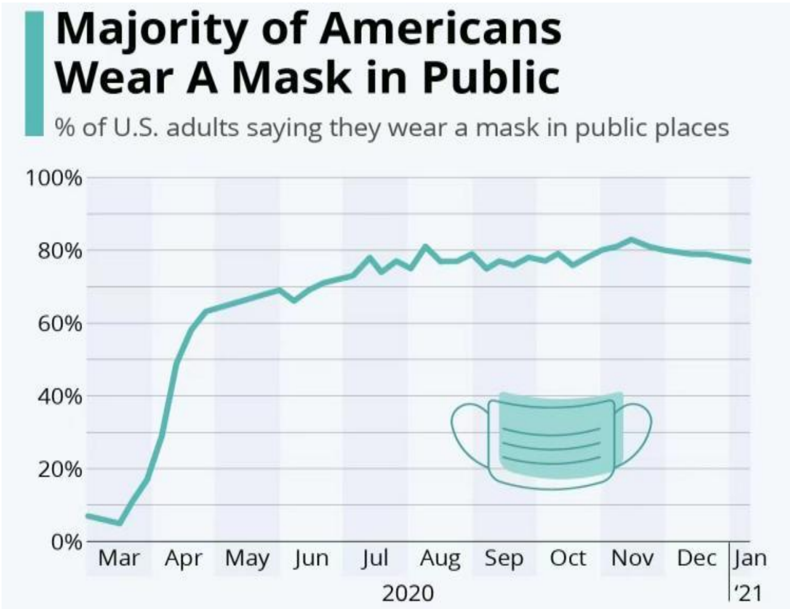

Figure 6. American mask wearing rate (information from www.statista.com)

4.3.2 government reaction

Since the beginning of COVID-19, an important reason China can quickly recover from COVID-19 is that the government has sent voluntaries all over the world to help the region that suffered from COVID-19 attack. Chinese medical workers responded positively, disregarding their risks and going to various parts of China to treat patients with new crowns and conduct COVID tests. Taking the Shanghai epidemic in 2022 as an example, 15 provinces in China dispatched more than 38,000 medical personnel and COVID testing forces of 238 bends a day to support Shanghai.

There is something beyond self-help, that is, helping others. After China dealt with its problems as a developing country, China offered to assist more than 40 countries. Not only sending Epidemic prevention supplies but also expert groups to help with other counties' COVID-19 problems. (File 1 are information from the beginning of COVID-19 to May 2020)

4.4 Economy analysis

China is a developing nation since its per capita income is below the average for developing nations. Compared to wealthy countries, developing countries have a weaker economy, less advanced technology, and worse living standards for their citizens.

No international agency has ever formally advanced the idea of developing countries and given them legal definition from their perspective. Since dividing emerging countries is inevitable, the customary method is to utilize per capita gross national product (GNP). Per capita gross national income (GNI), gross domestic product (GDP), or GDP are now the primary metrics used to assess the economic development of a nation. Low-income economies, as defined by the World Bank, are those whose average annual income was less than US$1,005 in 2010. Low- and middle-income economies had average incomes ranging from US$1,006 to US$3,975, upper-middle-income economies had average incomes ranging from US$3,976 to US$12,275, and high-income economies had average incomes of more than $12,276.

The first three classifications—low-income nations, lower-middle-income countries, and upper-middle-income countries—generally fall under the heading of developing countries. In 2010, China's per capita income was almost $1,900 USD. It is a developing country with an economy that is low- and middle-income.

Why is China still a developing country even though China got the second high GDP in the world in the past few years? According to Daniel Nepelski 2015, Although China's technology and economy have been greatly improved, many fields are on the same level as some developed countries. Due to China's relatively large population, the economic gap between people is also very large, and people The standard of living is also uneven [9-12].

Chinese economic development is a critical topic, as the research group collected information and compared it with other countries, concluded that as a developing country, instead of raising the country's international recognition, China has put more emphasis on the people. Every time the city's nucleic acid cost tens of millions or even hundreds of millions, China has always opened up nucleic acids to everyone for free. They are still spending workforce and material resources to control the new crown virus as much as possible. When most countries in the world choose to give up the fight against the new crown and talk about their coexistence, China is still trying to reduce infections as much as possible. China puts its citizens ahead of economic development. Not only protect their own country but also help other countries, donate materials, etc.

5. Conclusion

5.1 Main findings

The paper concludes by arguing the recovery of Shanghai's economy after the epidemic. Affected by the pandemic, Shanghai recorded negative economic growth of 13.7 percent in the second quarter, with the total economic volume reaching 933.9 billion yuan. In the first half of this year, Shanghai's GDP totaled 1,934.9 billion yuan, a year-on-year growth of minus 5.7%. So, on this basis, we conclude that we can see that the impact of the epidemic on Shanghai is very big. In the survey data, we found that Shanghai's epidemic prevention and control policies are very strict, such as the full lockdown policy and the closure of major ports, as mentioned above. These have had an indelible impact on Shanghai's economy. Due to the severity of the epidemic in Shanghai this time, it can be divided into four aspects:

1. The source is the Omicron variant;
2. The process of isolating patients is taking too long.
3. Lax management leads to widespread outbreaks.
4. The majority of asymptomatic patients were infected.

So, in order to further the development of Shanghai's economy and national health, discipline inspection organs at all levels based on the functions, and responsibilities, strengthen the political supervision, supervise and urge the ministries around the door though. Action unity to the CPC Central Committee decision deployment, promote tight, stiff fine will pay special attention to the epidemic prevention and control, to provide a strong discipline strong supervision and enforcement accountability.

5.2 Limitations and Future studies

Of course, it cannot be denied that only some comparative studies cannot summarize the whole of Shanghai's economic recovery after the epidemic. The insufficient sample size will have a certain impact on the demonstration of the results. But from the macro point of view, these will not constitute too much pressure on our research. In general, the economic situation of Shanghai has recovered rapidly after the epidemic, which proves our point -- Shanghai's economic resilience is strong.

Our study will take a closer look at the potential impact of the pandemic on all aspects of Shanghai. For example, some logistics and import and export trade. This assumption might be addressed in future studies. In more detail, it is how much the freight transportation in Shanghai has influenced the import and export trade of the whole country during the period of being closed. Future studies of supply chains may yield explanations for international transport aspects. Future investigations are necessary to verify the various conclusions drawn from this study. Future research could explore this question further by comparing data from previous years.

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