



Impact of COVID-19 to China and World Economy Development

Fang Jingxuan¹, Xiang Fang²

¹Hong Kong University of Science and Technology, China.

²International Business School, University of International Business and Economics, China.

ABSTRACT

China has been growing rapidly over past 40 years. Whether China could keep relatively high speed sustained growth is very important to the whole world. With COVID-19 happening, the uncertainty of its effect becomes bigger and bigger. The paper analyzes the Gross Domestic Product (GDP) total amount situation of China as the second world economy entity. As a developing fast growing country, China has its own characteristics and also has big gap to the first world economy entity USA. With the rapid development of internet especially under COVID-19, the paper analyzes the change of business model development. As a part of national strategies of China, internet is becoming one of most important tools for both business increasing and marketing developing with its users fast growing. The impact of COVID-19 also plays an important part.

KEYWORDS: Impact, Internet, Economy Development, GDP

INTRODUCTION

In 2010, China became the second world economy entity based on gross domestic product (GDP) total amount after surpassing Japan.[1] It is a milestone to China. Besides that, the following question appears, could China catch up USA which is the first world economy entity? When and how China can make it happen? With the internet growing rapidly and deeply, whether China could make good use of it to realize economy mid-high and sustained growth in a long term especially COVID-19 happening from 2020? Some brief analysis surrounding GDP could be done through several aspects.

Glance about COVID-19 impact

The sudden COVID-19 has brought huge disaster to the world. According to the data of WHO, the patients of COVID-19 had surpassed 270 million and over 5.35 million losing their lives till the end of 2021. Based on IMF announced data, world economy got deep YOY 3.1% decrease. The decline of developed economy entity was 4.5%. New growing market and developing economy entity dropped 2.1%.[2] COVID-19 had deeply changed the world economy running system in past 2 years. In 2022, the risk and uncertainty are also obvious.

Detail analysis about COVID-19 impact to China and world economy

Effect of COVID-19 to China economy

From the beginning of reform and opening-up in 1978,

China got great progress in economy. After over 30 years development, China became 2nd economy entity after surpassing Japan in 2010 based on grand GDP. However, with COVID-19 appearing, whether China economy or world economy had been suffered great impact from 2020.

Brief review of 40-year-Reform & Opening-up in China

In 1978, China grand GDP was only 147.3 billion USD and occupied 1.8% of total world GDP. After 40-year development, China grand GDP reached 12.24 trillion USD and occupied 15.17% of total world GDP. The rank was also from No. 10 to No. 2. Per capita was from 200 USD to 8827 USD. China had changed from low income to mid-high income country successfully.

In industry structure, economic development has gradually realized the transformation from industry led to service led. The structure of manufacturing industry is also changing from mid-low end to mid-high end.

From the perspective of urbanization process, China's urbanization rate in 1978 was only 17.92%. In 2017, the number was 58.52%. The social structure of citizenship has basically formed.[3]

In a word, China had made great progress in past 40 years. China economy has played more and more important part in world economy.

Influence of COVID-19 to China economy

At the beginning of 2020, a sudden COVID-19 happened in



Wuhan, China. In order to keep the health of Chinese, China government suffered negative 6.8% YOY economy growth in Q1. In past 40 years before 2020, the average YOY growth rate of China economy was always above 6%. So it is definitely a big challenge to China economy that COVID-19 appearance.

COVID-19 worldwide-spread also affected the export of China greatly because of the shock recession of world economy. And the export low need led to the repression of relevant industries. Furthermore, the obtain employment and income of Chinese would be influenced a lot. The demand of both investment and consumption were limited.[4]

In fact China GDP YOY of growth was only 2.3%. Despite all this, China became the only one main economy entity whose GDP realized positive YOY growth in 2020.

Brief analysis of COVID-19 to world economy

The global supply chain is an important force supporting economic globalization. The vast and complex supply chain networks that connect countless manufacturing companies and service companies around the world have urged the world economy into an interdependent and integrated organic whole. However, it has also increased the vulnerability of the global economy at the same time. In a highly interdependent global economic system, a temporary production shutdown or trade restriction in any one economy, especially as a key link in the global supply chain, will bring external shocks to other economies that should not be underestimated. COVID-19 is the right this kind of factor.

The development of main economy entities of the world before 2020

Except China, the main world economy entities including European Union(EU), Asia Pacific Economic Cooperation(AEPC) and North American Free Trade Area(NAFTA) contributed over 50 to world economy.

For example, the world economy YOY growth in 2019 could be analyzed. In 2019, Asia contributed 29% to world GDP YOY growth except China and Japan. US and EU contributed 11% and 4% respectively.[5]

In the past 40 years or so, the share of developing Asian countries in the global economy (in PPP terms) has grown from 8.9% to 34.1%. These are dominated by China, India and other fast-growing economies.

In 1980, the EU and the United States together accounted for 51.5% of global GDP; today, they account for only 31%. Similarly, the other shares of the global economy including Latin America, the Middle East and North Africa etc. have also shown a downward trend.

The situation after COVID-19

The continuation of the COVID-19 pandemic abroad has undoubtedly increased the uncertainty and risks of the global economy. Globalization has made it more and more

convenient and fast for various countries on the earth to communicate. At the same time, problem happened. The spread of COVID-19 is also easy to spread over long distances.

A globalized economic recovery depends on the victory over COVID-19.

Today's industrial chain has basically achieved globalization. That means an industrial product whose accessories may be produced in more than a dozen countries through convenient transportation and then assembled into a country for assembly. Among them, there must be suitable means of transportation such as planes, railways, ships and etc. to transport which will lead to the emergence of logistics and people.

COVID-19 has established an invisible trade barrier, which is not man-made, but naturally formed. Many countries have taken measures to restrict the flow of people, logistics and etc. during the epidemic period. The impact on global trade is like a South American butterfly just gently flapping its wings, which will affect the recovery of the global economy in a short period of time.

The global economic YOY growth rate in 2020 is -2.5%. The GDP YOY growth rate of 1st economy entity United States is -5.7%. EU is -8.3%. Japan is -4.2%. The developing countries as a whole is -2.2%.

China's influence in the world economic structure after COVID-19

COVID-19 is a risk or disaster to world economy. However, it is not only a risk but also an opportunity to China.

COVID-19 bring China an opportunity accelerating to catch up with and surpass the United States

The impact of China economy to world economic structure before COVID-19

Looking back to China over 2000 years history, GDP total amount percentage proportion in the world change greatly in different dynasty. Qin Dynasty has no detail data. Han Dynasty was economic center in eastern world. Its GDP total amount percentage proportion could be compared with old Roman Empire. Tang Dynasty created the peak GDP total amount percentage proportion in the world at its time. Song Dynasty created highest GDP total amount percentage 80% proportion in the world. Ming Dynasty GDP total amount percentage proportion began to decrease and re-grew at the beginning of Qing Dynasty then dropped quickly after 1840. With the PRC founded, China GDP total amount percentage proportion in the world resumed gradually and become the second economy entity now.[6]

Another factor is population. China population change in over 2000-year history has its own characteristics. From the century beginning 60 million to 1850 430 million, total number only increased 7 times. Year of year (YOY) growth

is only 0.1%. The growth rate is quite low. There are many factors to affect population growth. These factors include natural geography surroundings, agricultural production, war, politic systems and traditional thinking and idioms etc. [7]

Although many factors could affect population growth, China population percentage in history occupies quite big. Except at the ending of Dong Han Dynasty below 10% as bottom,

at other time the number is often above 20%. Usually the percentage could occupy 30% roughly.

From the analysis above, China GDP total amount and population percentage proportion in the world in history could be showed in table 1.[8] Comparing to the peak time of China history, China has big room to increase on GDP percentage proportion in the world. Or China has big potential on economy development.

Table 1. China GDP total amount and population percentage proportion in the world in history

Time	GDP percentage in the world	GDP Rank	Population percentage in the world
Han Dynasty	26%	2	10%
Tang Dynasty	58%	1	20~30%
1000	22.70%	2	20~30%
Song Dynasty(1095)	80%	1	20~30%
Ming Dynasty(1500~1600)	25%~29%	1	20~30%
Qing Dynasty(1700)	22%	2	20~30%
Qing Dynasty(1800)	32%	1	20~30%
Qing Dynasty(1870)	17%	2	20~30%
1900	6%		20~30%
1945	4%		20~30%
1978	1.8%	10	22.2%
1997	3.50%	7	21.5%
2005	4.90%	4	20.20%
2009	8%	3	19.60%
2014	13.40%	2	19%
2015	14%	2	18.84%
2017	15.17%	2	18.82%
2019	>16%	2	18%

The calculation model comparing China and USA GDP trend development

According to the official data of China State Statistics Bureau (CSSB), China GDP is roughly 14.34 trillion USD in 2019. Based on International Monetary Fund (IMF) assumption, USA GDP is roughly 21.37 trillion USD in 2019. From these data, China and USA GDP could be assumed to calculate the trend development in the coming years.

To forecast the future economy trend, the model could be described as formula 1.[9]

$$GDP_x = GDP_B \times (1+r)^n \tag{1}$$

In the formula 1, GDP_x is future year GDP number; GDP_B is basic GDP total amount value like 2019 country GDP total amount value; r is average YOY growth rate of GDP; n is year number or $x-1$.

If GDP_B , r and n could be known, after n year GDP of a country can be calculated.

Time calculation of China GDP catching up USA GDP at 2019

According to formula 1, China GDP growth forecast could be showed as formula 2.

$$X = \text{ChinaGDP}_{2019} \times (1 + \text{China GDP average YOY growth rate})^n \tag{2}$$

In formula 2, X is GDP value after n year from 2019; ChinaGDP_{2019} is China GDP value of 2019; China GDP average YOY growth rate is future 10 to 15 year China GDP average YOY growth rate assumption; n is year number.

As same USAGDP growth forecast could be showed as formula 3.

$$Y = \text{USAGDP}_{2019} \times (1 + \text{USA GDP average YOY growth rate})^m \tag{3}$$

In formula 3, Y is GDP value after m year from 2019; USAGDP_{2019} is USA GDP value of 2019; USA GDP average YOY



growth rate is future 10 to 15 year USA GDP average YOY growth rate assumption; m is year number.

According to CSSB of China official data, the value of formula 2 could be set briefly as below.

ChinaGDP₂₀₁₉ is 14.34 trillion USD. Based on China State Statistics Bureau data, in coming 10 years China YOY GDP average growth rate is 6% roughly. Formula 2 could be described as formula 4.

$$X = 14.34 \times (1 + 6\%)^n \quad (n \leq 10) \quad (4)$$

X is China GDP value after n year; n is year number. When n=10, X will be 27.22 trillion USD.

According to World Bank and American Standard & Poor's forecast, USA GDP YOY average growth rate in future years is roughly 2.5%. Thus formula 3 could be described as formula 5.

$$Y = 21.37 \times (1 + 2.5\%)^m \quad (5)$$

Y is USA GDP value after m year; m is year number. When m=10, Y will be 27.35 trillion USD.

When China GDP catches up USA GDP in total amount, formula 4 should be equal to formula 5 roughly. Or X is equal to Y and n is equal to m. So the formula 4 and formula 5 is equal. Thus n and m could be calculated.

$$n = m = 10.$$

This means China needs another 10 year to catch up USA on GDP from 2019. Or in 2029 roughly China GDP total amount value will catch up even surpass USA GDP and become first economy entity at about 27.4 trillion USD.

Time calculation of China GDP catching up USA GDP at 2022

With COVID-19 coming, world economy suffered great decrease. China became sole positive YOY growth economy entity. At the end on 2021, China GDP was 17.73 trillion USD and surpassed 17 trillion which EU contributed. USA GDP was 23.02 trillion USD. China narrowed the gap with USA.

According to Japan Economy Research Center data, both China and USA GDP will reach 28 trillion USD in 2028. Thus China will surpass USA and become 1st economy entity 1 year in advance in 2028.

COVID-19 influence China economy business model greatly

Internet is becoming a marketing tool at our new time. It has brought us an unimaginable huge reform. In human history progressing, when the communication speed and wideness had tremendous and revolutionary progress, it would lead to a new height of marketing and business development. Internet time has surpassed any times of history. There is nothing like internet speed and wideness which could make us dizzy. And internet can be instant and global.[10]

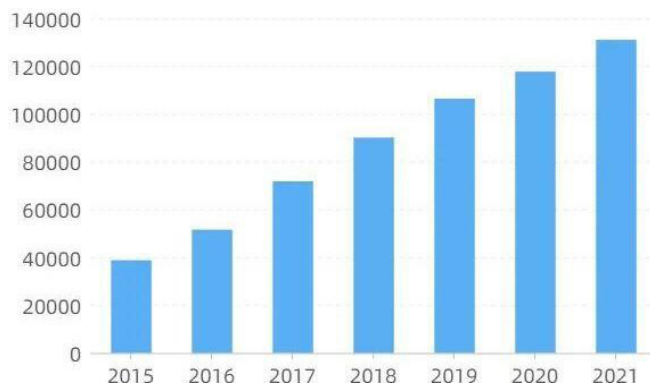
Internet business fast growing

It is because internet almost could touch everyone and

everywhere, the daily life of people and future will be affected greatly. Not only to the individual but also to the organization, environment, and family etc internet will bring many things to the human beings very much. Comparing to traditional marketing model, internet affects a lot in business and economy radically.

The E-commerce revenue growth trend displays as figure 1.[11]

UNIT: 100 Million RMB



Source: WIND

Fig. 1. China E-commerce revenue

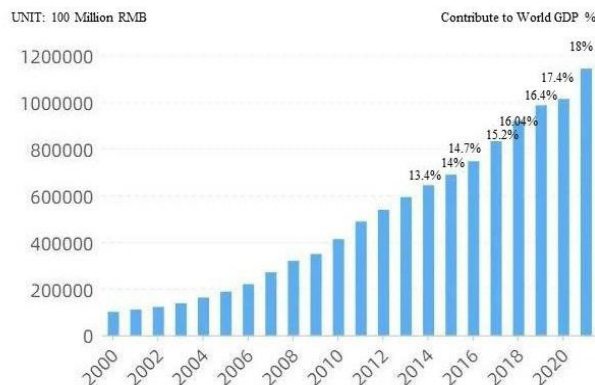
With the COVID-19 lasting, more and more people selected E-commerce through internet. The rapid growth data reflected it. And the trend will still go on.

China economy become important strength to world economy

In past over 40 years, China economy had being developed through reform and opening-up. The GDP contribution percentage of China to world GDP is also from 1.8% in 1978 to over 18% in 2021. It must be said to be a miracle in the world.

Though world economy had been seriously affected by COVID-19, China economy still showed great toughness in past 2 years. China contributed a lot to the world economy. And China has become a banner and an important force for world economic development. The GDP contribution percentage of China to world GDP is showed in Figure 2.

UNIT: 100 Million RMB



Source: WIND

Fig. 2. China GDP percentage contribution to world GDP

China will play an important role in world economic development in the future.

Summary

In conclusion, COVID-19 is changing a lot to the world. The world economy had been affected seriously in past 2 years. The uncertainty of future will lead to big change to people's daily life and business model. Internet will be utilized to the maximum extent. China economy has already given an excellent example. With relatively high speed growth rate to China economy today, internet gives people a wide, efficient and productive platform in both business and daily life.

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