

How will the Epidemic of COVID-19 Influence Digital Economy and Macro Economy?

By Sun Ke, CAICT

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Recently, the epidemic of COVID-19 (hereinafter referred to as the “epidemic”) has been spreading rapidly around China and to foreign countries. President Xi Jinping and Premier Li Keqiang made important instructions in succession, and chaired study sessions to devise the plan for prevention and control of the epidemic.

Under the hit of the serious epidemic outbreak, whether digital economy, as a new impetus for economic growth, could withstand the impact, support stable macro economy or even lead economic development, needs deeper analysis, study and assessment. Through comparison with the SARS pandemic in 2003, the quantitative findings indicate that the duration of the epidemic will be an important factor influencing the growth of digital economy. If the epidemic lasts till the end of March, the growth rate of digital economy would slow down by 2.2%, leading to 0.83 trillion yuan in economic loss; if the timeline of the epidemic stretches on to the end of May, the corresponding drop in growth rate would be 3.8% and economic loss 1.4 trillion yuan.

On the other hand, digital economy is the optimal choice in alleviating the impacts the epidemic and driving economic growth. Depending on the epidemic duration, the growth rate of digital economy could be about 2.8-3 times that of GDP. There still is great uncertainty in the development of the epidemic, so we should pay close attention to changes of relevant situation, seriously carry out study and analysis, shore up policy reservation, and keep developing digital economy to make it bigger and stronger, so as to lead and support high-quality economic development.

1. Changes of economic situation under influences of the major outbreak

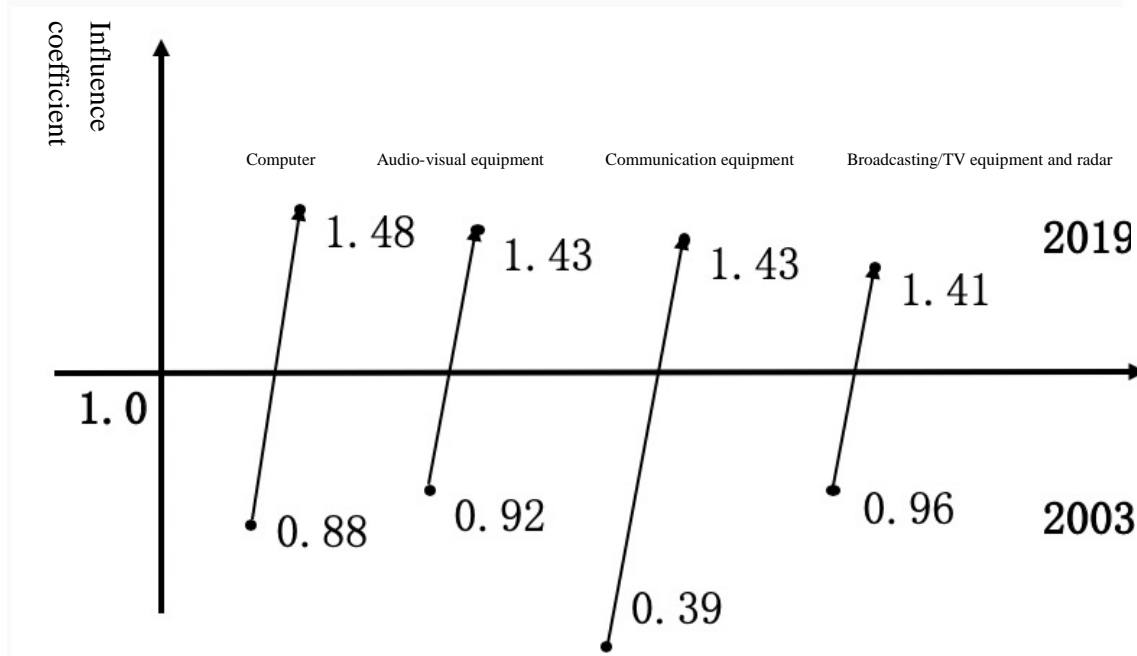
Change 1: Complex and shifting economic environment poses greater challenges

Compared with the situations during SARS, currently the economic development faces increasing difficulties. SARS broke out at a time when China was enjoying great economic development momentum from the combination of vast external demand following the accession to WTO, brisk demand for infrastructure investment and peak of population dividend. The globalization bonus greatly fueled economic development of China, and China began to become a “world factory”, creating spacious room for the development of SMEs. But today, China’s pursuit of high-quality development raised the bar higher for enterprises, and

rising de-globalization forces posed new challenges to the development of digital-economy enterprises. For example, in 2003, China reported total foreign trade growth of 37.1%, while in the 9 years since 2011, the year-on-year growth rate of China's total import and export has fallen to 5.3%.

Change 2: Technology innovation is dynamic as never before and digitalized industrial transformation quickens.

Digital economy makes the development correlation among industries and fields stronger. Accompanying the deep fusion and penetration of ICT technologies, products and services into various sectors of the national economy, the correlation among different industries is growing. The influence coefficients of computer, audio-visual equipment, communication equipment, broadcasting/TV equipment and radar have increased sharply compared with those in 2003, and information and communication technologies are becoming a foundational and enabling factor in the development of various industries and fields.



Source: National Bureau of Statistics; measured and calculated by CAICT

Fig. 1 Comparison of the influence coefficients of typical sectors in digital economy

Change 3: More and more investment constraints, less and less room for policy maneuver

The room for policy-driven economic development is more limited under the new circumstances. During SARS outbreak, the leverage ratios of the government, enterprises and citizens were relatively low, meaning plenty of room for monetary policy maneuver. Currently, as marginal rate of return on capital keeps going down, it is no longer viable to stimulate economy through large-scale investment. Now let's turn to the contribution rate and driving rate of the three major demands to China's GDP. The gross capital formation

contributed 70% to GDP in 2003 and drove the GDP growth by 7.0 percentage points. Comparatively, the gross capital formation contributed only 1.9 percentage points to the GDP growth in 2019.

The old approach of stimulating economy through the real estate no longer works. During SARS, the housing reform brought explosive growth of the real estate industry. In Aug. 2003, real estate was designated as a pillar industry. In the first two quarters of 2003, China reported an accumulative year-on-year growth of 37.4% for the sales area of commercial houses and of 44.8% for the total sales amount. At present, the policy emphasizes “houses for living in rather than for speculative investment”, and the government will not rely on the real estate industry to boost economy after the epidemic. In 2019, the year-on-year growth of commercial house sales area and total sales amount in China were -0.1% and 6.5% respectively. With the whole economic picture in mind, China should continue to “stabilize housing prices, land prices and expectations”. It should not be a policy option to offset economic downturn by stimulating the real estate industry.

2. Sensitivity analysis of COVID-19’s influences on digital economy

(1) Influence analysis for a 3-month scenario

If the epidemic lasts for 3 months, the average annual nominal growth rate of digital economy would slow down by 2.2 percentage points, corresponding to a direct economic loss of about 830 billion yuan. Insufficient supply from both online and offline supply channels would be a major bottleneck impacting the development of digital economy. **In terms of industrial digitalization**, the influences of COVID-19 on economic operation firstly feature short-term impacts to macro demand, particularly consumer demand, both online and offline. An estimate indicates that sectors closely related to the digital industries, warehousing and postal service, wholesale and retail, and lodging and catering, among others, would suffer the most, with the growth rate to drop by 12.6, 3.8 and 12.1 percentage points respectively. **In terms of digital industrialization**, the shift of massive offline demands to online would stimulate the Internet industry to certain extent. According to McKinsey estimates, of every 1-unit growth of online consumption, 61% represents the substitution for existing demand and 39% newly increased demand. On the industry level, the telecom industry and broadcasting industry will remain steady, and E-commerce, online service, online video, online medical service as well as other emerging business forms and related services will see an uptick.

(2) Influence analysis for a 4-month scenario

If the epidemic lasts for 4 months, the average annual nominal growth rate of digital economy would slow down by 2.6-2.9 percentage points, to 15.1%-15.4% or so, about 2.7-2.8 times that of China’s GDP. Negative influences of COVID-19 on traditional industries would grow deeper and wider by the day. In this period, special attention should be paid to the industries with relatively big influence on various economic sectors. For example, computer, audio-visual equipment and communication equipment are the “leading industries” and play a leading role in driving macro economy. When production is in standstill, prioritizing these industries could stimulate the development of general industries. In such a scenario, giving

play to the leading and driving role of new industries, new modes and new forms of business would become an important approach to stabilizing economic growth.

Table 1 Industries that deserve special attention in a 4-month scenario

Digital Economy-related Industries	Influence Coefficient	Digital Economy-related Industries	Influence Coefficient
Computer	1.48	Broadcasting & TV equipment/radar and supporting equipment	1.14
Audio-visual equipment	1.43		
Communication equipment	1.43	Electronic components	1.36

Source: the National Bureau of Statistics, CEIC; measured and calculated by CAICT

(3) Influence analysis for a 5-month scenario

If in some regions the imported cases are not fully controlled and the spread resumes till the end of May, the links in the tertiary industry that require personal participation would face a severe test, but the role of emerging forms of business in driving growth would start to show; in the secondary industry, new technologies that replace human labor with automation and robots would be applied in a larger scope and digital transformation would go further; the primary industry would begin to feel the negative impact due to delay of spring farming. It is expected that in 2020, the growth rate of digital economy will slow down by 3.1-3.8 percentage points, to 14.2%-14.9% or so, about 2.8-3 times that of China's GDP.

3. Digital economy is an effective way to offset impacts of the epidemic and stabilize economic and social development

(1) Digital economy plays a striking role in leading and driving macro economy

Authoritative studies generally hold that the epidemic will bring impacts to macro economic operation of China for a short term, but not influence the mid/long-term operation momentum. The Peterson Institute of America thinks that the economic loss from the outbreak of COVID-19 may be less than that from SARS. Standard & Poor's argues that COVID-19 may weaken China's GDP by 1.2 percentage points. Chinese experts' studies indicate that the epidemic will influence Q1 GDP by 1-3 percentage points and whole-year GDP by 0.5-2 in 2020. The epidemic duration will determine how digital economy will perform and how deeply it will influence macro economy. Even down by 3.8 percentage points, the growth rate of digital economy could still reach 14% or so, which is significantly higher than the forecast of 5%-6% growth in macro economy.

(2) Innovations and startups in digital economy will speed up economic structure optimization and upgrading

While continuously influencing current forms of business, the epidemic stimulates massive innovative forms of business at the same time, and propels production and life management activities to go digital, network-based and intelligent, thus enabling constant optimization of the economic structure. **In the service sector**, the momentum of online/offline fusion significantly speeds up. Taking finance as an example, during the epidemic, banking, securities and insurance companies launched online/offline fusion services one after another, which created brisk demand for low-latency networks, software and hardware, as well as business demand for 5G, AR/VR and 8k video, and quickened the availability of smart outlets, virtual banks and other new businesses. **In the industrial sector**, digital transformation keeps accelerating. The epidemic will have certain influences on production and market supply. Extended holiday and quarantine measures for migrant population will directly impact the return of massive labor forces to cities and work resumption of enterprises. Against such a backdrop, some enterprises have accelerated the application of robots, automation and other new means, further quickening digital transformation of the manufacturing industry.

(3) The development results of digital economy will benefit the people more

Digital economy is benefiting people's livelihood in more fields and at a deeper level. **In the medical field**, new-type medical service modes keep emerging. For instance, during the epidemic, shortage of doctors and nurses is a serious problem. AI-powdered droids provide a solution to low efficiency of manual disinfection and inadequate safety guarantee for operators. Research shows that the orders for such droids have grown by 7-8 times during the outbreak, and the new mode of "machine plus doctor/nurse" is further accelerated. **In education**, online education ushered in opportunities of rapid development, and significantly features the extension from online vocational education to full-time online education. According to incomplete statistics, China has reported the growth of more than 100 online full-time education platforms during the epidemic period. For example, Guangxi set up an online learning platform for middle and primary schools, to ensure "learning continues though class suspended" with the help of network-based two-way communication channels between teachers and students for teaching and tutoring. **In employment**, telecommuting, a more flexible way of work, witnessed quicker breakthrough. Epidemic prevention requires separation in workplace, which means employees do not have to stay in the same physical space as their employers. Such spatial separation leads to detachment from previous organizational environment, forming whole-new changes in the employment mode. Relevant studies show that due to influences of the epidemic, the size of flexible employment market of China will grow by over 23% in 2020.

(4) Digital economy presents a historical opportunity for reshaping the economic development form

While causing serious negative influences on people's life and production, the epidemic also brings rare historical opportunities for reshaping the ecology of digital economy. Many big e-commerce platforms active at present, such as Alibaba and JD as well as others, witnessed rapid development and expansion after SARS in 2003, and have deeply changed consumption,

production and other modes of economic and social operation. We should make efforts to change the disaster into an opportunity, reshape the endogenous mechanism of digital economy and society, seize the window of opportunity for digital, network-based and intelligent development, explore new technologies, new forms of business and new modes, and find new impetus for growth and new development paths. Only in this way can we promote transformation of economic development from factor-driven to innovation-driven, and bring about changes in quality, efficiency and of impetus.

4. Effectively handle the epidemic and make digital economy bigger and stronger, to support high-quality economic development

The short-term objective should be to ensure stable development. Measures should be taken to further give play to roles of 5G, big data, AI, IoT and other digital technologies in epidemic prevention, monitoring and response; to moderately adjust fiscal and monetary policies for fields relating to digital economy, enhance the counter-cyclic adjustment in fields important to people's livelihood and grant proper subsidies to some emerging digital-economy enterprise to tide them over difficulties; and to map out policies for stabilizing digital economy-based new industries, new modes and new forms of business and for fostering new consumption and investment hotspots as soon as possible.

The mid-term objective should be to size the window of opportunity. Work should be done to enhance forward-looking basic research, increase source technological supply, focus on demands of the epidemic, and lead major breakthroughs in original technologies, key and core technologies and strategic technological products through breakthroughs in basic research; to speed up industrialization of sci-tech innovations, particularly to foster a group of innovative leading enterprises in the areas much needed by epidemic prevention and control; and to strengthen support for SMEs in digital economy to innovate.

The long-term objective should be to focus on improving quality and efficiency. Efforts should be made to propel China's digital-economy industry to mid- or even high-level, and move ahead with industrial structure optimization and upgrading. Following the guideline of enhancing the increments and optimizing the stocks at the same time, we should foster and develop emerging industries while improving and upgrading traditional industries, thus constantly moving up the industrial chain. We should promote integrated development, with the focus on fueling deep integration of information and communication technologies with real economy, particularly the manufacturing industry. Meanwhile, we should also work to build an institutional environment suitable for digital transformation and development.

About the author

Sun Ke, PhD in economics, senior engineer, Director of the Department of Digital Economy Research, Policy and Economy Institute, CAICT; main research topics: digital economy, digital transformation and digital trade.

Email: sunke@caict.ac.cn