



# The Influence and Development of Digital Economy on Employment

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## ABSTRACT

When it comes to the digital economy, enterprises also imperceptibly affect the relationship between labor relations in the new economy and the traditional labor relations also began to exist in many differences. The digital industry brought by digital economy has brought new jobs. The number of jobs is increasing, but the quality of jobs also needs to be further improved. The text adopts the method of SWOT, the impact of the digital economy on employment is examined from four perspectives in this research: advantages, disadvantages, opportunities and threats. The new jobs have a great impact on the tradition. While bringing new jobs, some traditional jobs are being replaced, and the number of people who have been replaced further forms the difficulty of reemployment.

**Keywords:** digital economy, industry, digital employment impact.

## 1. INTRODUCTION

### 1.1. Research Background

As per report of the Communist Party of China's 19th National Congress, the major development strategy of "Digital China" is clearly stated for the first time, and the scale of China's digital economy is constantly expanding. According to KPMG's prediction, by 2030, the proportion of the digital economy in China's GDP will reach 77%, which means that more than 153 trillion yuan of GDP contribution will come from the digital economy. In the early days of the term digital economy, the core of e-commerce is based on the Internet technology [1]. With the wide application of a series of emerging industries such as artificial intelligence, 5g, cloud computing and big data, China's internet economy has grown in importance. Meanwhile, the new generation of technology brought by digital economy has an impact on the employment of different industries and different groups in different regions, and also brings new opportunities and challenges in China's employment market.

China's digital economy market is ahead of the world. China is the country that uses the most industrial machines in the world. In 2020, China's Internet penetration rate has reached 70.4%, and the number of Internet users has reached 989 million. At the same time,

718000 5g base stations, more than 200 million 5g terminal connection data and 462 million active internet protocol users have been built, at present, China's industrial robot stock has ranked first in the world. The total amount and scale of China's digital economy are growing, and the contribution of the digital economy to China's GDP is also growing, and the influence of digital economy in the world is increasing.

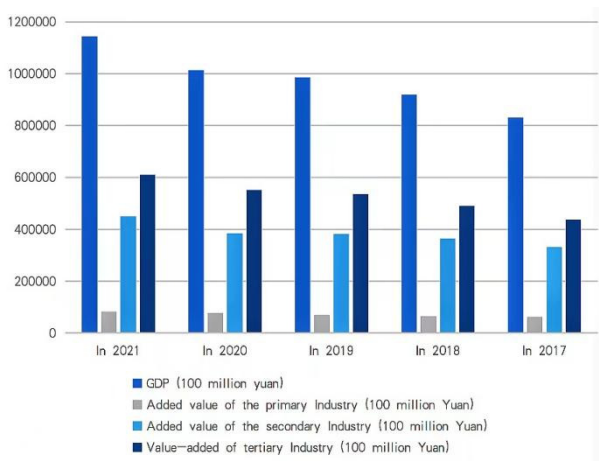
### 1.2. Research Significance

The digital economy has become an indispensable part of our life. While skillfully using digital economy, we can forecast and predict the future development of the digital economy in order to develop digital economy more stable. The first part of this article will describe the present situation of the development of the digital economy, and then describe the demand for employment against the backdrop of the digital, through SWOT analysis of the benefits and losses brought by digital economy.

## 2. CURRENT SITUATION OF DIGITAL ECONOMY IN CHINA

As the supply-side structural reform is advancing and the manufacturing sector moves toward standardized, digital, and green development, the employment situation in the manufacturing sector continues to change [2]. Among them, it is particularly affected by the gradual

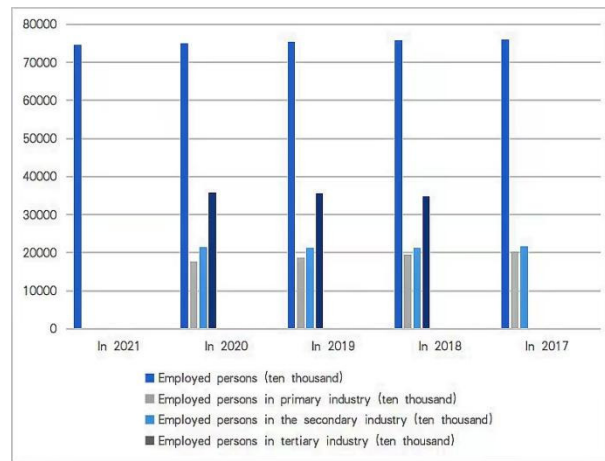
improvement of infrastructure and the digital transformation brought about by the rapid decline in the use cost of industrial software, cloud computing and big data [3]. China's digital economy is developing rapidly. Through the GDP of the past five years, it can be seen that China's GDP level has been increased from 91.9 trillion in 2018 to 115.4 trillion in 2021. Among them, the increase of the tertiary industry is particularly obvious. China's tertiary industry is far ahead of the primary industry and the secondary industry (Fig. 1). From 2016 to 2020, the scale of China's digital economy will grow from 22.6 trillion yuan to 39.2 trillion yuan, of which the proportion of GDP will be from 30.3% to 38.9%. It can be seen that the level of China's digital economy has been stabilized, and the development technology of the digital economy has been increasing. Simultaneously, the field of digital economy development is also increasing, whether in daily life or in factory production, digitization has become an indispensable part. Digital technology is applied in industry, agriculture and service industries. The growth of the Chinese digital economy focuses on industrial digitization, in which the digital development level of the tertiary industry is significantly higher than that of other industries.



**Figure 1** China's GDP development in recent five years from National Bureau of Statistics

It can be seen that the number of new jobs brought by the tertiary industry is increasing. The proportion of digital industry is still higher than that of digital industry. Industrial digital applications include industrial Internet, intelligent medical treatment, intelligent transportation and intelligent education. Industrial networking refers to the integration of industrial systems with computing, analysis, sensing and connectivity technologies. Its application is closely related to workers, production lines and suppliers. Intelligent medicine has broken the traditional medical space and medical resources, and has transformed the traditional medical technology into medical informatization. Patients, medical staff and medical institutions can interact with

each other without hindrance, and the problem of uneven medical distribution can be solved to a certain extent. At the same time, it provides more jobs for medical staff. Intelligent transportation is to use advanced information technology, data communication transmission technology, electronic sensor technology, control technology and other effective integrated application in a large range of real-time, efficient and accurate traffic management. Intelligent education refers to the intelligent connection and intelligent management services provided by individuals, students, educational institutions and education management departments. With the application and development of various aspects, the scale of digital economy will reach 42.4 trillion yuan in 2021, and the number of users in China will reach 1.05 billion people. The scope of using digital economy will become wider and wider. Digital payment, digital shopping and intelligent education have gradually become indispensable applications in our life. The promotion of the digital economy has also created new jobs in China, and has become a new employment engine of digital economy in the employment market. The employed population of the tertiary industry continued to grow, from 340.01 million in 2016 to 358.06 million, of which the labor force accounted for 44.7% to 47.7%.



**Figure 2** Distribution of employment personnel in China from National Bureau of Statistics

### 3. SWOT ANALYSIS

#### 3.1. Strengths

##### 3.1.1. Employment Scale Continues To Increase

Developing the digital has led to the emerging industries of intelligent industry, such as artificial intelligence, cloud computing, 5g and other technologies, which stimulate more new industries, and the emergence of emerging industries also causes a large number of employment demand [4]. With the increase of the

employed population, the production efficiency will increase, the output will further increase, and the income of workers will also increase, people's living standards have been continuously improved. Labor efficiency has increased rapidly. In the industrial economy, the traditional family role and inherent social status make it difficult for women to participate in employment. The emerging industries have broken the traditional employment posts, so that women can also choose the types of work to realize social value, so as to improve women's social status and realize the real equality between men and women. The number of jobs also increases from this aspect of the economy. In contrast, digital industries such as artificial intelligence and new retail have enriched the employment forms of workers. The large number of newly created jobs tend to have relatively high labor income and are highly attractive to the floating population. At the same time, the application of artificial intelligence and other digital technologies will inevitably bring more capital accumulation and improve labor productivity [5].

### *3.1.2. The Application Of New Technology Makes The Production Efficiency Higher*

Therefore, the application of digital equipment improves the efficiency of labor resource allocation in China [6]. The development of digital economy is not only more intelligent in life, but also more flexible in the production line. The development and application of new technology increase the efficiency of labor production. More comprehensive realization of intelligent society. The operation of intelligent machines reduces the cost of products, improves the real wages of residents and increases the demand for social purchase, thus, the demand of labor force is increased, and a series of problems such as career are solved effectively.

## *3.2 Weaknesses*

### *3.2.1. High Quality Scientific And Technological Talents Are Still In The Minority*

For a few years now, with the rapid growth of the digital economy. The application of high technology needs to master the knowledge and skills of calculation, operation and marketing, which shows that there is a great demand for the comprehensive ability of talents. Today, the digital economy is an important factor in the overall national strength competition of a large country, therefore, it is also very important to be in line with international standards. Some enterprises will also require to learn other language knowledge, which has become an obstacle to talent selection. In this situation of high demand for employment in the digital economy, excellent talents in all aspects are still in the shortage stage.

### *3.2.2. Job Classification*

The development of digital economy, not only promotes social development, but also widens the gap of employment income. The digital economy has high technical requirements for the employed, so the low-end labor force will face unemployment. For those who master high-tech and intelligent technology, their income is relatively rich. The income classification of posts is becoming more and more serious, and the income gap is growing. Different levels of income differences will become larger and larger, resulting in a large gap between the rich and the poor, increasing the number of poor people, affecting social stability and development.

## *3.3 opportunities*

### *3.3.1. The Digital Economy Brings New Employment Patterns And New Jobs*

The fast development of the digital economy has contributed profound changes to employment. As the forerunner of the digital economy, digital industrialization has created new jobs [7]. Digitalization increases the probability of independent entrepreneurship, and the digital economy creates a large number of employment opportunities, and at the same time fills new jobs that human capital is not competent for [8]. Employment has developed from traditional companies and employees to platforms and individuals, which increases different employment opportunities for different groups of people. According to statistics, nearly 10 million jobs have been created through e-commerce platforms. It has expanded the employment market, increased the country's GDP and provided a good environment for economic development. With the continuous development of the digital economy, employment substitution has emerged, which has reduced productivity, but reduced production costs, and further expanded the market scale. The expansion of the scale has driven the demand for employment. Therefore, it can be said that the demand for labor in the digital economy has increased, which has reduced the price of digital products and increased its output, thus bringing about an increase in labor demand [9].

### *3.3.2. Digital Economy And Entrepreneurship*

Within the broad development of the digital economy, it is believed that farmers are greatly affected by digital finance, and they may start their own businesses and bring about equal opportunities for entrepreneurship [10]. As for the special products in different regions, due to the seasonal influence and the lack of traditional selling methods, the online shopping platform has brought more business opportunities to farmers and villagers, to provide jobs for remote areas, improve income, and truly realize the Rural Revitalization. The inherent advantages

and essential characteristics of the digital economy, such as information dissemination, data creation and sharing, and significant reduction of transaction costs, effectively break through the contradiction between supply and demand of factors in urban high-quality development and production, the space restriction of economic activities and the failure to take into account the fairness and efficiency [11].

### **3.4 threats**

#### **3.4.1. The Development Of The Digital Economy Varies Between Regions**

There are differences in the development of digital economy in different regions. Beijing, Shanghai, Shenzhen, Guangzhou, Hangzhou, Nanjing, Chengdu, Tianjin, Ningbo, Suzhou, Wuhan, Chongqing, Xiamen, Fuzhou and Qingdao rank among the top 15 in the competitiveness index of digital economy in 2020, according to the data of China's urban digital economy development report (2021). According to the East, the middle and the west. There are 12 in the eastern region, 1 in the central region and 2 in the western region. The eastern region has the largest proportion of digital economy development cities. Most eastern regions are coastal with a nice climate and many harbours. As result, more cross-border e-commerce markets can be expanded. Compared with inland regions such as Tibet, logistics is more convenient and digital economy infrastructure is more solid. Differentials in the development of the digital economy also lead to different employment demands, in the countries where the development of digital economy is in an advantage, there are relatively more jobs related to digital economy, and there are more employees than in inland areas.

#### **3.4.2. Labour Replacement Will Be Difficult To Re-hire**

It is difficult to replace the highly educated talents with higher education level. Science and technology, as the primary productive force, not only promotes the social and economic development and the rise of new industries, but also forces many once prosperous industries to withdraw from the historical stage, causing a large number of structural or technical unemployment. Smart machinery replaces a larger amount of traditional manual labour, which is more evident in the manufacturing industry. Once these technical workers have been replaced by smart machines, they need long-term training to develop new skills before they can return to work. However, it takes a lot of time and leads to idle labor resources. And the demand for labor training is not necessarily much. With the rapid development of digital economy, these traditional low-tech jobs have been replaced.

## **4. SUGGESTIONS**

### **4.1. Optimize The Government's Policies**

The digital economy gives birth to a large number of emerging products, the government can adjust the policy to increase subsidies to enterprises in new industries, reduce taxes, encourage people to start businesses, encouraging all small, medium and micro e-commerce platforms to reduce service fees will accelerate the transformation of traditional enterprises to digital, provide jobs for low-skilled workers, and reduce a large number of unemployment.

### **4.2. Improve The Education Of The Digital Economy**

The rapid development of digital economy puts forward new requirements for the labor market [12]. This also means that the government should pay attention to the cultivation of digital technology talents, more skilled use of intelligent equipment, scientific and technological life into the major fields of society, the manufacturing industry explores the applicable scenarios of the commercial environment and promotes agricultural machinery, production machinery and all other tools to improve labor efficiency, and improve the overall work efficiency of our country.

### **4.3. Encourage Overseas Talents To Return To China**

The government should encourage overseas talents to return to China to improve their competitiveness and innovation ability. Scientific and technological innovation will be more diversified and labor force will no longer have more limitations. For the short board of high-quality technical personnel, technical training can be increased, such as the establishment of universities or institutions of the digital economy type, the establishment of courses related to digital economy, and multi-faceted excavation to guide high-quality scientific and technological personnel.

### **4.4. Promote Balanced Development Among Regions**

Furthering deep integration between the digital, attention should be paid to the differences in the influence of digital economy on various regions. Marketization of labor element configuration to optimize allocation of resources, eliminating regional resources endowment difference and economic disparities have important influence, as part of a digital economy development plays an important role in promoting regional balanced development of the Internet, and ignores the flow of the transmission mechanism of labour elements may lead to the Internet and the regional economic gap between the

understanding of the relationship between the errors [13]. Ensure the flow of information in all regions, so that the digital economy, not only in the developed areas of the development, so that the digital economy covers a wider area, not only in the economic development of the rapid development of the region. Unify the resources and laws of the digital economy, so that building the digital economy can be as volatile as possible. We will continue enhance the level of digital governance , and support the participation of private capital rather than just state-owned enterprises.

## 5. CONCLUSION

### 5.1 Key Findings

The digital economy is a double-edged sword. Although the economic market has been expanded, the traditional manufacturing industry has been restrained, and a lot of transformation problems have appeared in the reform. The development time of the digital economy is short, but it has expanded China's GDP. With the rapid expansion of the digital economy, there are new requirements for employment, which harms the traditional manufacturing industry. Some low-skilled workers are facing the risk of unemployment, leading to the service industry and entrepreneurship becoming a hot spot. For a large number of unemployed people, the online shopping, e-commerce platform has solved the transformation of re employment of farming skilled workers. For the government, encouraging entrepreneurship can not only increase production, but also create jobs for the unemployed. Therefore, the government should adjust policies to support entrepreneurship, improve competitiveness and increase production.

### 5.2 Future Outlook

In just a few years, the digital economy has become an important competitive factor for each country, which also reflects the importance of developing digital economy. Nowadays, information technology boundary, logistics management system is relatively mature, e-commerce industry has a broad prospect, more and more people choose independent employment, at the same time, the construction of innovation platform is also endless. After the transformation of the labor force, the labor force has been adjusted. Most of the unemployed are reemployed, and intelligent machines also inject new vitality into enterprises to increase labor efficiency.

## REFERENCES

[1] E. Brynjolfsson, B. Kahin. (2000). Understanding the Digital Economy: Data, Tools, and Research. Cambridge, MA: The MIT Press. DOI: <https://doi.org/10.7551/mitpress/6986.001.0001>

- [2] C. Lu. (2022) Research on the influence of digital economy on employment of Chinese labor force. *China Price* (02),84-87.
- [3] L. T. Gong. (2021). The characteristic influence of digital economy employment and coping strategy. *Governance* (23),29-35. doi:10.16619/j.cnki.cn10-1264/d.2021.23.007.
- [4] X. Yang, Y. Z. Liu & Y. Guo. (2020). The influence of digital economy on Employment structure in China: Based on mechanism and empirical analysis. *Soft Science*(10),25-29. doi:10.13956/j.ss.1001-8409.2020.10.05.
- [5] Y. C. Cai & N. Chen. (2019). Artificial intelligence and high-quality growth and employment in the new technological revolution *The Journal of Quantitative & Technical Economics*. (05),3-22. doi:10.13653/j.cnki.jqte.2019.05.001.
- [6] Y. Caong & B. T. Yu. (2020). The impact of digital economy on the efficiency of Labor resource allocation in China. *The Theory and Practice of Finance and Economics* (02),108-114. doi:10.16339/j.cnki.hdxbejb.20200403.001.
- [7] J. Y. Xu. (2020). Research on the influence effect of digital economy on labor market. *Journal of Shangqiu Vocational and Technical College*(04),47-51.
- [8] Q. Meng. (2021). Digital economy and quality employment: Theory and Evidence. *Journal of Social Sciences*(02),47-58. doi:10.13644/j.cnki.cn31-1112.2021.02.005.
- [9] J. Huang. (2021). A review of the impact of digital economy on labor market. *Co-Operative Economy & Science* (14),100-101. doi:10.13665/j.cnki.hzjjykj.2021.14.038.
- [10] T. Zhao, Z. Zhang & S. K. Liang. (2020). Digital economy, entrepreneurial activity, and quality development: empirical evidence from Chinese cities. *Journal of Management World*(10),65-76. doi:10.19744/j.cnki.11-1235/f.2020.0154.
- [11] L. Li. (2022). The influence of digital economy on employment and countermeasures. *On Economic Problems* (04),37-42. doi:10.16011/j.cnki.jjwt.2022.04.002.
- [12] F. Z. Hu. (2021). Digital economy, New forms of employment and labor market transformation. *Study and Practice* (10),71-77. doi:10.19624/j.cnki.cn42-1005/c.2021.10.007.
- [13] J. F. Huang. (2021). The impact of Internet development on regional economic disparities in the context of digital economy: Based on the

perspective of labor factor allocation. *Journal of Commercial Economics*(21),167-171.

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