

Research on public policy plan of unemployment risk caused by artificial intelligence

Rui Cheng

Ling Nan University, Hong Kong, 999077, China

Abstract: At present, artificial intelligence has been widely used in many fields of economy and society. The development of artificial intelligence has rich implications for the times and is closely related to unemployment. Technical unemployment, structural unemployment, asymmetric unemployment, and sudden unemployment are the realistic forms of unemployment caused by the development of artificial intelligence. With the rapid development of artificial intelligence (AI) technology, unemployment risk has become a problem that cannot be ignored. In order to meet this challenge, the supply path of public policy is particularly important. This paper will discuss how to effectively alleviate the unemployment risk caused by artificial intelligence through the supply of public policies from five aspects: policy support, education and training, employment service, social security, and regulatory supervision.

Keywords: artificial intelligence; unemployment; public policy plan.

1. Introduction

With the advent of the digital economy era, artificial intelligence technology has shown a strong ability to change the economy, society, and industrial upgrading. It is recognized as the main driving force for the new round of scientific and technological progress. In 2015, "artificial intelligence" became a part of the national "internet plus" strategy. In 2016, the word "artificial intelligence" was written into the national "Thirteenth Five-Year Plan" outline. In 2017, the "Artificial Intelligence 2.0" proposal further promoted artificial intelligence to a national strategy. In 2019, local governments such as Shanghai, Shenzhen, Beijing, and Zhejiang successively issued policies to promote the development of local artificial intelligence, and accelerating the construction of artificial intelligence has also become the focus of attention in various places. Years of development have helped China's artificial intelligence level rank among the top in the world. In 2020, the comprehensive score of China's artificial intelligence innovation index rose to second place in the world, and the scale of the artificial intelligence industry has increased to 303.1 billion yuan[1]. There is still huge room for growth in the future. Therefore, studying the impact of artificial intelligence on China's economy and society can better cope with all kinds of opportunities and challenges in the future "artificial intelligence" era.

With the rapid development of science and technology, artificial intelligence (AI) has demonstrated its ability to surpass human beings in many fields. However, this also brings a problem that cannot be ignored: AI may cause mass unemployment. In order to meet this challenge, public policies need to carry out pre-plan research in advance to ensure social stability and sustainable economic development. The development of artificial intelligence brings unemployment risk, but it also brings new employment opportunities and higher labor productivity. Public policies need to actively respond to the challenges brought by AI. At the same time, they should fully use AI's advantages to promote sustainable economic and social development. By increasing investment in vocational education, promoting industry transformation and upgrading, encouraging innovation and entrepreneurship, establishing unemployment security mechanism, implementing labor retraining, strengthening the construction of laws and regulations and guiding public opinion, we can effectively reduce the unemployment risk caused by AI and realize the sustained and healthy development of social economy.

2. The connotation and development trend of artificial intelligence

2.1. The connotation of artificial intelligence

As a hot topic in the field of science and technology, artificial intelligence (AI) is changing our way of life and work at an unprecedented speed. From robots to self-driving cars to smart homes, AI is used more and more widely. Understanding artificial intelligence's connotation and development trend is of great significance for us to grasp the future development of science and technology and adapt to new social changes. Artificial intelligence is the technology that enables machines to simulate human perception, cognition, learning, and decision-making through computer algorithms and models to complete specific tasks or solve specific problems. The core of artificial intelligence is to make machines have a certain degree of human intelligence in order to better serve human beings[2].

2.2. Development trend of artificial intelligence

(1) Deep learning and reinforcement learning

As one of the most important technical trends in the world today, artificial intelligence has rich and diverse connotations and broad development prospects. Deep learning is an important branch of artificial intelligence. By constructing a deep neural network, machines can automatically extract features from a large number of data and make accurate judgments. Reinforcement learning is to let the machine learn how to make the best decision by trial and error. The development of these two technologies will further improve the intelligence level of AI.

(2) Computer vision and robotics

Computer vision technology will help machines understand the world like humans. Robot technology will benefit from the development of computer vision and realize more precise motion control and more powerful functions. Service robots will play an important role in medical care, education, and other fields. And with the continuous progress of natural language processing technology, AI will be able to better understand human language and realize more natural human-computer interaction. The maturity of speech recognition technology will promote the popularity of voice assistants, intelligent customer service, and other applications and bring users a more convenient experience[3].

(3) Internet of Things and Edge Computing

With the popularization of Internet of Things technology, more and more devices will be connected to the network, generating massive data. Edge computing technology will make data processing and analysis on the device side and improve data processing speed and privacy protection. This will bring new development opportunities for smart homes, intelligent transportation and other fields. However, with the wide application of AI technology, its ethical and regulatory issues have become increasingly prominent. How to give full play to the value of AI while protecting personal privacy and data security will become an important topic for future development. Relevant policies and regulations will be continuously improved to guide the healthy development of AI technology.

(4) AI empowers all industries

The development of AI technology will promote integration and innovation with other fields, such as 5G communication and blockchain. The high-speed and low-latency characteristics of 5G will provide a better application environment for AI, while blockchain technology will guarantee AI's data security and credibility. These integrations will lead to more unprecedented application scenarios and business models. In addition, the application of AI will penetrate various industries, such as medical care, finance, and education. Through deep integration with the industry, AI will release great potential, improve production efficiency and quality of life, and promote sustainable economic and social development.

3. A realistic look at the impact of artificial intelligence on employment.

The impact of artificial intelligence on the job market is complex and diverse. In the face of practical problems such as job replacement, skill demand change and salary impact, we need to rationally examine and take corresponding measures. By adjusting policies, upgrading workers' skills and promoting the development of emerging fields, we can reduce the impact of artificial intelligence on the job market and achieve sustained and healthy economic and social development. At the same time, the government and all walks of life should work together to guide workers to adapt to the new employment environment and provide them with more employment opportunities and career development paths.

3.1. Job replacement

The substitution of artificial intelligence technology for traditional jobs is one of its main influences on the job market. Many repetitive and high-intensity labor-intensive jobs, such as production line assembly and data entry, are gradually being replaced by automated robots. This has caused some workers, especially low-skilled workers, to face unemployment risks. In the face of the employment structure adjustment brought by AI, workers need to adapt to new skills needs. The demand for advanced programming, data analysis, machine learning, and other related skills is increasing. However, many workers lack these new skills and need retraining or continuous learning to adapt to the new job market.

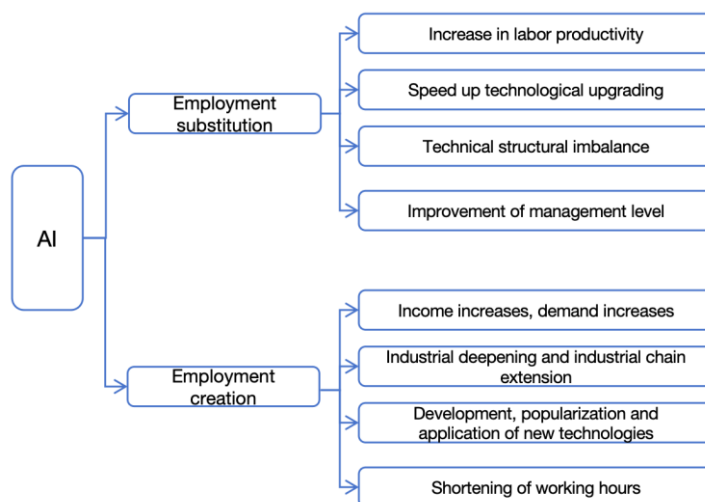


Figure 1. Theoretical Mechanism of Artificial Intelligence Affecting Total Employment

3.2. Wage impact

The widespread application of artificial intelligence may lead to a decline in the salary level of some positions. Because automation reduces production costs, enterprises may reduce the salary level of corresponding positions. However, for talents with advanced skills and professional knowledge, their salary level may increase because they can provide support and guidance for AI technology.

3.3. Create new employment opportunities

Although artificial intelligence has had an impact on traditional jobs, it has also created new employment opportunities. The development of AI has spawned new fields such as data analysis, machine learning, and automation software development, providing new employment opportunities for professionals. In addition, with the popularization of AI technology, there will be more auxiliary jobs related to it, such as AI ethics consultant and automation system maintenance.

3.4. Policy adjustment demand

Policy adjustment needs Faced with the impact of artificial intelligence on the job market, the government needs to adjust relevant policies in a timely manner to meet the challenges. This includes strengthening vocational education and training to improve the skills of workers; Formulate a labor market monitoring and early warning mechanism to keep abreast of the job market dynamics; Optimize social security policies to provide necessary protection and support for the unemployed; Encourage innovation and entrepreneurship, foster new economic growth points, and thus create more employment opportunities.

4. The impact of artificial intelligence on employment groups

4.1. Change the employment pattern and structure

First of all, some jobs will be replaced by automation. With the development of AI technology, many repetitive and mechanical jobs can be replaced by automation. For example, the assembly and packaging work on the production line can be done by robots, which may cause some low-skilled workers to lose their jobs. Secondly, there will be cases where intelligence affects knowledge-intensive jobs. The performance of AI in some fields can be comparable to that of professionals and even exceeds the ability of human beings. This brings competitive pressure to some knowledge-intensive positions, such as lawyers, doctors and teachers. Of course, it will also create new employment opportunities, and the development of artificial intelligence has also brought new employment opportunities. The application of AI technology requires a large number of talents in R&D, design, programming, and maintenance. At the same time, AI has also spawned many emerging industries, such as smart home, virtual reality, driverless, etc., providing job seekers with more choices[4].

4.2. Increase the income proportion of the top population

Artificial intelligence can help product R&D personnel obtain users' needs, design products, test products, and improve products more quickly and accurately through automation and intelligence, as well as improve the growth rate of product types or quality of the top people as a whole. For example, TikTok will provide video-related broadcast data to video creators to help them understand the current video creation trend. Google uses machine learning technology to improve the search algorithm and natural language processing technology to make the search results more aligned with users' intentions. Tesla uses deep learning technology to optimize the autopilot system and uses data analysis and machine learning to improve vehicle performance and efficiency. Therefore, from the perspective of income growth rate, artificial intelligence will increase the income proportion of the top people.

4.3. Exacerbated the structural contradictions in the labor market

The application of artificial intelligence improves the standard of labor and employment, thus strengthening the structural contradiction of the labor market, which makes the labor market have the coexistence form of "difficulty in recruiting workers and difficulty in employment". At the same time, because of the continuous progress and wide application of artificial intelligence technology, a lot of work in the future needs to be completed by man-machine cooperation, so the post requires professionalism, cooperation, and more technical and skilled talents. The survey shows that compared with the past, new situations and new problems are often encountered in the work, and the requirements for various work skills are rapidly improved. According to relevant survey data, the shortage of artificial intelligence talents in China exceeds 5 million, which has become a bottleneck restricting the development of artificial intelligence. By the end of 2021, the total number of skilled personnel in China exceeded 200 million. The proportion of skilled personnel to the total number of employed people exceeded 26%. The number of highly skilled personnel exceeded 60 million, accounting for 30% of skilled workers, with a low proportion[5]. At the same time, with the gradual

reduction of middle and low-end jobs, it will become more and more difficult for older and low-skilled workers to transfer to jobs and re-employment. Artificial intelligence technology may bring new social problems, such as unemployment, the digital divide, and income inequality.

5. Public policy supply path

5.1. Policy support

The government should formulate a series of policies to encourage and support enterprises to actively respond to the changes brought about by AI. This includes providing financial support for enterprises, such as tax incentives and R&D subsidies, to reduce the cost of adopting AI technology. In addition, the government can also set up a special fund to support the transformation and upgrading of industries and fields that are greatly affected by AI technology.

5.2. Education and training

Faced with the changes in the demand for skills brought by AI, the government should increase investment in education and training. First of all, vocational education and training should be strengthened, and relevant courses should be offered for emerging industries and fields to help workers master new skills. In addition, we should also promote the implementation of the concept of lifelong learning, encourage workers to continue learning and enhance their competitiveness. For those workers who are unemployed due to AI technology, the government should provide job transfer training and re-employment guidance to help them smoothly transition to new employment fields.

5.3. Employment Services

The government should establish a sound employment service system to provide all-round employment services for workers. This includes employment information release, career counseling, recruitment services and so on. Through the timely release of enterprise recruitment information and industry trends, help workers understand the employment market situation and improve their employment success rate. In addition, the government can also establish a public employment service platform to provide online and offline recruitment and job search services for workers and enterprises.

5.4. Social security

Facing the unemployment risk brought by AI, the government should improve the social security system and provide necessary protection for the unemployed. First of all, a sound unemployment insurance system should be established to provide certain living security for workers who are unemployed due to AI technology. In addition, the government can provide help to the unemployed who have difficulties in life through social assistance and other measures. At the same time, the government should pay attention to the mental health of the unemployed and provide psychological counseling and care services.

5.5. Regulatory supervision

In order to standardize the development and application of AI, the government should strengthen regulatory supervision. First of all, relevant laws and regulations should be formulated to clarify the scope of use and responsible subjects of AI technology and protect the legitimate rights and interests of workers. In addition, the government should also establish an evaluation and review mechanism of AI technology to ensure that its application will not cause too much impact on the job market. For the abuse of AI technology to harm the interests of workers, the government should punish it according to law and maintain a fair, competitive market environment.

6. Conclusion

In short, the impact of artificial intelligence on employment groups is complex and far-reaching. Faced with the challenges and opportunities brought by AI, workers need to actively adapt to the new job market demand and constantly learn and update their skills. Governments, enterprises and educational institutions also need to take corresponding measures to help workers successfully cope with the changes in the AI era. Facing the unemployment risk caused by artificial intelligence, the government needs to formulate an effective public policy supply path from five aspects: policy support, education and training, employment service, social security, and regulatory supervision. By encouraging enterprises to innovate, increasing investment in education and training, improving the employment service system, ensuring the basic livelihood of the unemployed, and standardizing the development and application of AI technology, we can provide better employment security and development opportunities for workers and promote sustained and healthy economic and social development.

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