The Impact of Artificial Intelligence on the Labor Force in the Primary and Secondary Industries

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ABSTRACT

Since the new century, with the workforce, algorithm, big data, and the rapid development of artificial intelligence, AI has significantly influenced our lives. In this paper, the existing artificial intelligence technology workers from all walks of life talk about the influence of various aspects, which meets in the employment of various kinds of convenience and disadvantages. Some comments and suggestions are given. This paper explores the impact of the development of AI on the labor market and uses chart data case models. The introduction, influence, existing job placement, and restriction conclude and put forward the view that workers should coexist harmoniously with artificial intelligence.

Keywords: Artificial intelligence, Labor force, Job replacement, Primary sector

1. INTRODUCTION

With the development of arithmetic and big data, artificial intelligence has had a huge impact on society in recent years. We cannot live without AI and get used to the replacement of the laborers. The situation affects the opportunities of the careers. In terms of the tendency of technology, we have broad prosperity in AI. Nowadays, in our nation, since the population of the laborers increases significantly, the authorities have more and more attached importance on getting a job. From my perspective, the development of AI yields a severe shock on jobs. It mainly presents that it will eliminate some traditional careers that some individuals do not want to work on and produce new products that create fashionable jobs. Subsequently, it will change the employment structure of the labor force. In this article, we will research the current situation of AI and analyze AI's effect on obtaining employment. To adapt to the development of artificial intelligence in China, improving the quality of labor, protecting workers' rights, and playing the role of AI have become the most urgent issue in modern times.

2. INFLUENCE ON SOCIETY

The popularization of artificial intelligence, information technology, and other technologies and their continuous integration with all walks of life will promote industrial upgrading and provide people with a more convenient and high-quality life and bring many challenges.

More and more labor forces are being replaced by artificial intelligence. Physicist Stephen Hawking once said: "Automation in factories has already put many traditional manufacturing workers out of work, and the rise of artificial intelligence will extend unemployment to the middle class. In the future, only a few jobs will be left, such as nursing, innovation and supervision." Indeed, as artificial intelligence is constantly applied in various industries, more and more industries are being replaced by artificial intelligence.

In the finance and accounting industry, Deloitte, one of the big four accounting firms, has released financial robots, which can complete the basic workload of dozens of minutes of manual accounting in a few minutes, greatly improving work efficiency. Some stores and supermarkets have eliminated the need for cashiers in the retail industry, and people can pay by scanning the code with their mobile phone payment function after choosing products. For online shopping malls, the original manual customer service has been replaced by robots in large quantities.

Driven by artificial intelligence technology, the industrial sector is bound to upgrade its talent structure. At this time, young people who master artificial intelligence technology will inevitably get more job opportunities. In the era of the Industrial Internet, with

the continuous implementation and application of cloud computing, big data, artificial intelligence and other technologies, the impact of new technologies on the industrial field will be greater and greater, so the application of new technologies will also accelerate the adjustment of talent structure, which will be more and more obvious in the context of the upgrading of industrial structure. For the current college students and professionals, to stay competitive in the era of artificial intelligence, they should make preparations from three aspects: one is to actively embrace new technologies such as artificial intelligence; the other is to choose the entry point of learning based on their major; the third is to actively create practice and communication scenes for themselves.

Artificial intelligence is the trend of the development of the era. The popularity of artificial intelligence can replace a large number of labor, which means that many people are unemployed. Still, then again, the robot of artificial intelligence is to serve the human. They create a large number of social wealth and give something back to the human. Artificial intelligence will enable the manufacturing industry, service industry, financial industry and so on to save huge expenses, greatly reduce labor costs, improve corporate profits, and then the government will vigorously raise corporate tax, and then return to the society, return to the people.

Moreover, according to the experiment, it is found that the substitution effect of AI has different effects in different age groups. "It is shown that the 20 – 29 age group is the least likely to be substituted, while the 60 – 69 age group is the one with the highest substitution probability." Thus, it can be seen that there is a positive correlation between age and the probability of replacement, which also shows that artificial intelligence plays an important role in improving efficiency in modern society. They replace the elderly to work and greatly reduce some problems of decline in production capacity caused by age [1].

Not only is age, but also the level of education is an important factor affecting whether the labor force can be replaced. Experiments show that people with low education levels are more likely to be replaced by artificial intelligence [2] because they lack certain uniqueness. The labor market of people with low education levels is more flexible, leading to a great increase in their replacement. On the other hand, people with a high level of education can develop or improve the existing labor efficiency and productivity and even improve the system behind artificial intelligence. Accordingly, the market is becoming more inelastic. Therefore, we can also say that the level of education is negatively correlated with the possibility of being replaced.
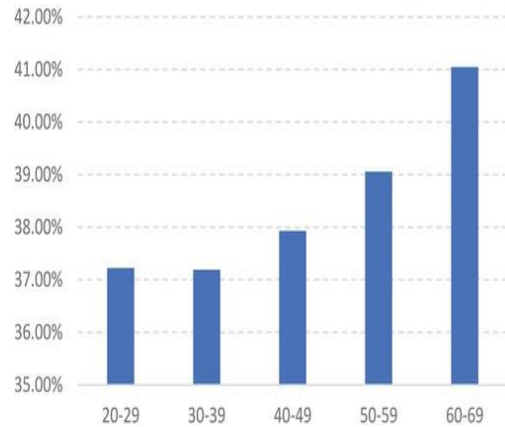
Figure 1. Source: Minglong Li, Dexiang Yin, Hailian Qiu, Billy Bai. (2021) "A systematic review of AI technology-based service encounters: Implications for hospitality and tourism operations." International Journal of Hospitality Management 95, pages 102930 [1].

According to the data of 2015, the entry of artificial intelligence into the factory has helped to improve a lot of productivity and increased the world's GDP by 1 / 10 until 2007 [3]. This figure is amazing because modern science and technology have made more rapid progress, and accordingly, its impact on world GDP is even more amazing. In the primary and secondary industries, artificial intelligence has also developed its unique and convenient role. For example, in the farmer industry, people pursue the maximization of productivity. Therefore, the introduction of robots provides a platform for better agricultural management projects [4]. Artificial intelligence helps people make decisions, including transplanting rice seedlings, turning soil and so on. Such a large-scale application also assists the agricultural industry to reduce the risk of crop reduction due to the inability to accurately predict the weather. Similarly, it also reduces the fatigue, disease and mistakes caused by people's hard work.

3. EXISTING JOB REPLACEMENT

In the era of artificial intelligence, it is impossible not to change the labor market. To the individual, do not follow the rules, to pursue creativity; For employment, it is not necessary to pay attention to the quantity, but to the post structure and income distribution. In society, polarization can create new destabilizing factors, and it can be an opportunity for many people.

The first is to know how AI will affect the labor market. There are three main points. First, AI can do tasks that were done faster, better and cheaper than the previous one, making hiring unnecessary. The global job structure of recent years shows this clearly. The chart above is for Europe, and the second column shows the change in the proportion of jobs between 1993 and 2010. Many process-oriented jobs in the middle income, such

as clerical, mechanical and metalworking, have declined significantly. From 2007 to 2012, the number of jobs in operations, manufacturing and other industries also declined. In terms of the income distribution, the middle class is shrinking.

Change in Employment by Major Occupational Category, 1979–2012
(the y-axis plots 100 times log changes in employment, which is nearly equivalent to percentage points for small changes)
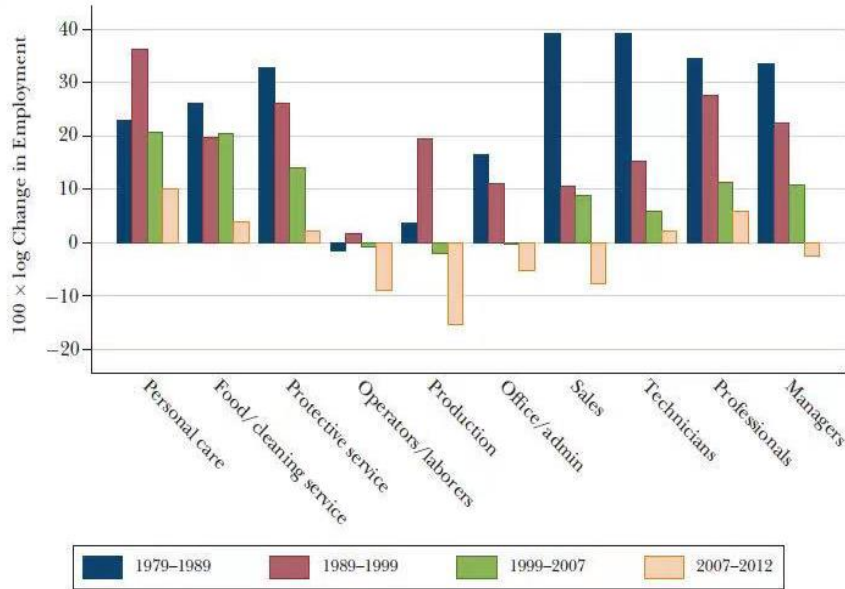

Figure 2. Source: Autor, David H., and David Dorn. "How technology wrecks the middle class." The New York Times 24 (2013) [5].

The second way AI could affect the labor market is by complementing each other and helping people do their jobs better. This is likely to increase the number of jobs and incomes because the same Labor input, thanks to AI, now produces more. One is law, where software like Ross helps lawyers and legal assistants find and organize cases, saving valuable time on core business. The second is go. AlphaGo has defeated all the players, but the players can choose to work with artificial intelligence to improve their performance. Such complementarities often occur in high-paying industries, mirroring a rise in the share of high-paying jobs worldwide.

Change in Occupational Employment Shares in Low, Middle, and High-Wage Occupations in 16 EU Countries, 1993–2010
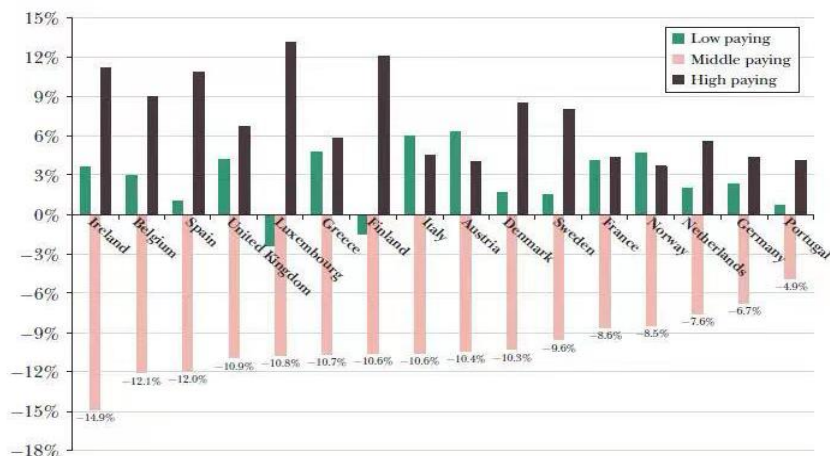

Figure 3. Source: Gregory, Terry, Anna Salomons, and Ulrich Zierahn. "Racing with or against the machine? Evidence from Europe." (2016). R&R at American Economic Review [6].

The final way AI could affect the labor market is by creating demand. For example, the rise of artificial intelligence has created a demand for artificial intelligence courses. The former requires more goods

and services, such as quadratic elements, mechanical keyboards, etc. Related to this is the rise in the proportion of low-paid jobs in society, particularly in low-paid services. They are doing jobs where machines are temporarily more expensive than people or where machines are temporarily unable to be flexible or communicate effectively. They also have corresponding needs. Higher demand on both sides will boost employment.
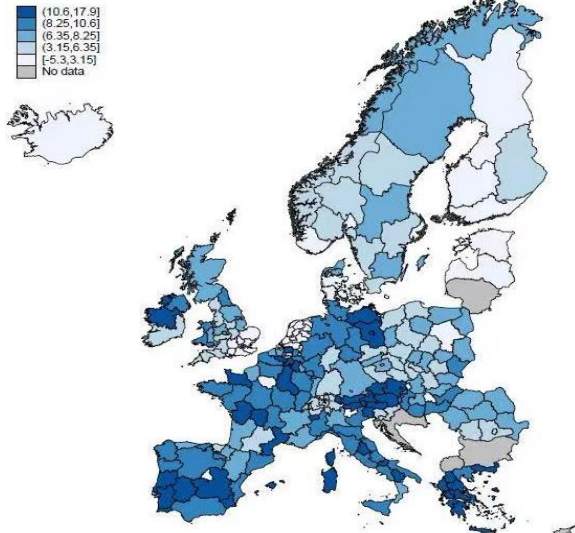

Figure 4. Source: Goos, Maarten, Alan Manning, and Anna Salomons. "Job polarization in Europe." The American Economic Review 99.2 (2009): 58-63 [7].

Finally, another factor affecting the Labor market has nothing to do with artificial intelligence: outsourcing [8]. Technological progress has made the world "smaller", creating greater competition among labor forces. Services that are once impossible to import or export, including education, customer service and consulting, are now globally mobile. Workers in developed countries may suffer from fierce competition, resulting in job transfer and lower wages. In contrast, developing countries may reap the benefits, accept jobs and earn high incomes [9]. The chart above is a study released this year of changes in the number of jobs in parts of Europe between 1999 and 2010. The darker the blue, the more jobs were added, with the numbers in the upper left corner of the legend. If you look at the whole thing, the total number of jobs increased by 1.9% over the 11-year period. Thus, there is no evidence that there are fewer jobs overall.
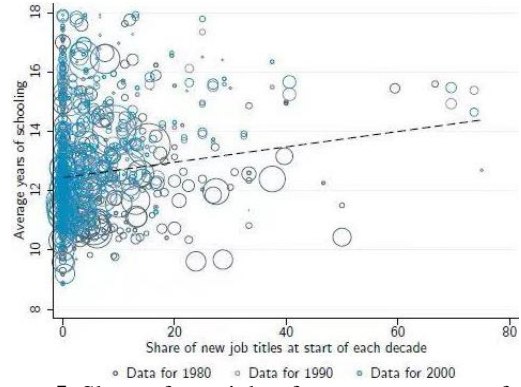
Figure 5. Share of new job refers to percentage of new jobs brought by social development and progress every decade. Source: Boustan, Leah Platt, Carola Frydman, and Robert A. Margo, eds. "Human capital in history: The American record." University of Chicago Press, (2014) [10].

Due to social structure changes, the education level of workers in the primary and secondary industries cannot meet the current standards. Taking the United States as an example, in recent years, the proportion of workers with higher education continues to rise, new job categories are emerging rapidly, and a high proportion of workers in new jobs have received higher education. At the same time, the wages of workers with higher education experience increase, and the gap between those without higher education experience continues to widen. This is consistent with the above mentioned "decline in the middle and increase at both ends", indicating that technological progress is biased towards the higher education group and improves their individual competitive advantages. This bias in artificial intelligence may be stronger, leading to faster and larger differentiation. While AI may "liberate" some middle - and low-income people, they are likely to lose their jobs, and the first people to take advantage of AI and reap profits are likely to remain those with a specific level of education.
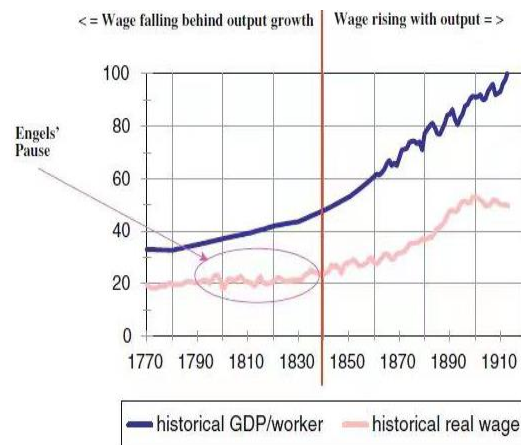
Figure 6. Source: Allen, Robert C. "Engels' pause: Technical change, capital accumulation, and inequality in the British industrial revolution." Explorations in Economic History 46.4 (2009): 418-435 [11].

Whether through study and re-employment, accepting lower-paid, less decent jobs than before, or receiving government assistance, it is a painful process. As for income inequality is a short-term phenomenon, there may not be much to worry about. But history suggests that inequality may persist. The chart above is the famous "Engels stagnation": between the 1830s and 1860s, when Britain's Labor output took off, wage growth per head was 0% [11]. The birth and wandering of ghosts are filled with blood and tears, and accusatory soil. Many of the most famous luxury brands started in that era, and many of the ideas that still hold power today were born in that era. If this stagnation had occurred in modern times and the gap between rich and poor had widened, would a new masterpiece have been born?

As to whether we can enjoy ourselves or not, we should pay attention to the fact that the consumption of some goods is for survival, while the consumption of other goods often depends on what other people consume and how much their neighbors, friends and relatives consume. Even if you remember the backward years, how do you address the negative externalities of luxury consumption? - economic This force is afraid to pull you forward. Finally, a summary. Since the middle is smaller, the two ends are bigger, the top earns more, and the individual should strive for the best to do irreplaceable and artificial intelligence complementary work the best. There will be a lot of people trying to combine AI with people from all walks of life. High-income people have more time and need more tools to provide services, such as socializing and transportation. As the proportion of low-income people increases, the corresponding market will also expand, such as online articles and live broadcasts. These goods are cheap but not inferior. As long as there is enough demand for popular tastes, the cost of elaborate production can be recouped. Finally, in an age of social division, ideology is also a way to make money. These may all be tuyere-originated air masses.

4. RESTRICTION

While ai is impacting all industries around the world, it is also revolutionizing the labor market. Go back to history. Since the first Industrial Revolution, technology has replaced many human jobs, led to changes in the global employment structure and propriety of work, and spawned a batch of jobs with new concepts.

For now, the wave of AI jobs has spread. However, in the next 15 years, with the development of autonomous driving, superhuman vision，and hearing, intelligent workflow and other technologies, professional drivers, security guards, radiologists, administrative assistants, tax collectors, domestic servants, journalists, translators，and other jobs are likely to be replaced by artificial intelligence.

Artificial intelligence can reduce the number of employees, break through the bottleneck of human efficiency, reduce standardized and repetitive labor. Does it mean the arrival of the tide of human unemployment? Technological progress inevitably causes occupational and prosperity of work transformation, just like a large number of labor force who have been separated from traditional agriculture and traditional handicraft industry. In the modern industrial production or new jobs in the city services, artificial intelligence will bring a new business model and industry and then create a series of new jobs and careers. Let some services no longer limit to tedious quantitative data sorting, and after all, creative and managerial work still needs to be done by humans.

Artificial intelligence does not solve people but liberates them to a certain extent. Artificial intelligence is a continuation and expansion of human intelligence. Although it is more powerful than human individuals in some specific abilities, artificial intelligence cannot completely replace human mental work. If humans don't give artificial intelligence the original accumulation, artificial intelligence cannot start to work. And the so-called "intelligence" of artificial intelligence is limited within limits set by humans.

The construction of artificial intelligence fully represents the concept of metaphysics and cognitive logic in the world. Through an interactive automata system, we should pay attention to the problem of free will and counterfactual conditional sentences in the deterministic universe [12].

So instead of worrying about AI threat to society, we should think about how to improve the quality of education, increase employability, and redistribute the people being replaced. Governments, societies and individuals should take immediate action to embrace transformation.

4.1. From a Technical Point of View

Artificial intelligence needs to compute massive data. If the relevant data accumulation or the computing capacity of hardware devices on which artificial intelligence depends cannot meet the needs of practical applications, its development may be hindered. For example, the financial industry did not attach importance to the accumulation and storage of data symbols in some fields in the past, so it may take a long time to collect data to meet the needs of the practical application of artificial intelligence.

4.2. From a Regulatory Point of View

AI may lead to some potential security, privacy or risks that require stricter regulation when landing. For example, artificial intelligence may cause the leakage of

personal privacy, and regulators should partially restrict the application of artificial intelligence to protect personal data. Some ai technologies that have been applied abroad may not be approved in China, so the speed of AI applications may be slower than expected.

4.3. In Terms of Talent

Domestic AI reserve of talents is still relatively weak, and there is still a gap in talent knowledge structure and innovation ability. Compared with foreign countries, it cannot meet market demand, and it is difficult to recruit skilled AI experts. As a result, many enterprises cannot independently develop AI application solutions. If China fails to keep up with the development needs in cultivating and attracting AI-related talents, it will cause obstacles to the popularization of artificial intelligence.

4.4. In Terms of Social Security

Encouraging workers whose jobs are threatened by AI to relearn other skills is difficult, and it is unclear which new skills will be imperishable. If social safety nets are provided, the social security programs may further raise labor costs and lead to more automated jobs. But a new social security distribution framework will certainly emerge in the future.

5. CONCLUSION

This paper summarizes the impact of some existing artificial intelligence on the primary and secondary industries and gives detailed examples of some industries to prove the great contribution of AI to the improvement of industrial productivity. For example, artificial intelligence replaces some service personnel to entertain guests and help guests get more official and rapid replies and answers. It helps farmers predict the weather, help sow and irrigate crops, save people's labor, and reduce the possibility of low harvest. In addition, artificial intelligence can also replace some accounting or managers of small and medium-sized enterprises. And it will replace more decision-making behaviors with the gradual strengthening of internal systems.

This paper also discusses the reasons for fears and emphasizes the unique nature of artificial intelligence. It believes that given the significant reduction in capital costs and the potential for productivity improvement shown by some applications, especially among low-skilled people, great opportunities for productivity improvement may follow. At the same time, the risk of further inequality must address if the benefits of technological advances based on artificial intelligence are to be widely shared. To this end, a skills policy is necessary, but not enough. In addition, new forms of digital economy regulation are needed to prevent further increases in market concentration, ensure appropriate data protection and privacy, and help share the benefits

of productivity growth through profit sharing, capital taxes and reduced working hours.

In addition, artificial intelligence is easily manipulated by others, which will destroy the whole system in a large area. Artificial intelligence relies on external input to help them learn some systems. Without the continuous update of the system, artificial intelligence will stagnate in a state and cannot make progress. In this way, we cannot catch up with the progress of social development. People will lose some shares of the labor industry and become without income, increasing the gap between the rich and the poor and other social problems.

In a word, artificial intelligence is of great help to our current life. Robots have played an essential role in increasing productivity in primary and secondary industries. However, there are still some humanitarian ideas and limitations that people need to consider. Certain restrictions on artificial intelligence can provide more protection for the overall productivity and security of the world.

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