"The Tide of Unemployment?"

An investigation of intelligent machines and workers

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At a Decannon (sports retailer) in Jiangyin, Wuxi, six manual checkout counters have disappeared, leaving only two cashiers next to a row of self-checkout counters. Customers only need to put goods into the machine and it will scan what they selected automatically, followed by issuing the bill to their smartphones. "Machines have been around for a long time, it's fast and can eliminate the bitterness of customers when they wait in line," said a cashier, aged about 35. "I'm a bit scared to be replaced."

It can become a severe force to be reckoned with

Background and literature review

Since the industrial revolution in Britain in the 1760s, machines have come into our lives step by step, from the spinning Jenny to the steam engine. The revolution happened in no accident. It was the inevitable result of British social politics, economy, production technology, and scientific research, the choice of times. Over the next few hundred years, the use of machines spread around the world and permeated every aspect of life. However, it has a massive impact on workers.

The machine's use has already shown its potential, as in Guangzhou's polar flight project[1], drones are combined with the Internet to spray cotton with pesticides, which significantly reduced the labor costs, such examples are numerous, including Amazon's unmanned supermarket, bank self-service counter, AI teachers..., in this transformation, where do we go?

"I have never thought about losing a job,… now the job search is about academic qualifications and specialties."

Yaping Wu, a dismissed worker from a textile factory. She is beyond high school education and was yearning for entering enterprises such as textile mills. Before being laid off, she repeated almost the same weaving action every day with a good salary. Whereas rapid economic development comes with a large number of machines, and many workers like her were thrown into unemployment by mechanization utilization.

"The old machines used before requiring much personnel to operate. Later, with a new machine with higher efficiency, each person can run four to five machines." (以前使用的老机器需要大量人员操作，后来有了效率更高的新机器，每人可以操控四到五台机器。), during the interview, she said.

"I entered the factory at the age of seventeen,…I have never thought about losing a job. Our state-owned enterprises had three or four thousand workers before and later laid off half. Not only our company, all the textile industry faced with this problem." (我十七岁就进工厂了,……我从没想过会失业。我们的企业之前有三四千工人的，后来下岗了一半。并且不光是我们公司，所有的纺织行业面临了这个问题。)

Toward the end of the interview, she emphasized the importance of education and skills. "Now the job search is about academic qualifications and specialties. At that time, the people's congresses were all graduated from high school, and they did not have the skills to fit the job they wanted."(现在找工作都讲究学历和特长。我们那时的人大都是高中毕业的，又没有一技之长，很难再找到心仪的工作。)

Over the years, she had lost hope, and the stress of supporting her family, caring for her elderly and raising her children weighed down like a burden on her meager pension. It is hard for her to extricate herself from the difficult position.

However, this story has two sides, and Yaping Wu is not the only protagonist of the story. In our interview, an HR manager gave a different opinion

"It is difficult to promote this method of replacing employees."

Huiming Li, 34 years old, who has witnessed the company's innovation, listing, mechanized use, during the past ten years, said in the interview, "Although the number of people required for each production process it will be reduced, but the worker cannot be completely replaced. Many unstable factors in the production process need artificially controlled, the accuracy of the machine is not up to the requirement, and the cost is too high, so the machine used. It is difficult to promote this method of replacing

employees."(虽然每个生产工序所需的人数会减少，但工人不可能被完全代替。在生产过程中有很多的不稳定因素需要人为调控，机器的精度达不到要求，并且成本太大，所以用机器代替员工这一方法很难推广。)

When she is asked recruitment qualification standard, she said: "Our company has a relatively great demand for labor and has much pressure on recruitment. Therefore, it does not have too strict requirements for academic qualifications. Generally, junior high school graduates." （公司对劳工需求比较大，在招工方面有较大的压力，所以并不对学历有太严格的要求，一般初中毕业就行。）

Interestingly, according to HR department managers of large enterprises, the era of large-scale replacement of labor unions has not arrived yet, and mechanization of the textile industry is just a case in point. From a capital point of view, the fields to be replaced are all large, batch, easy to replicate and less complex. Occupations such as glass installation and gardening are hard to standardize, which will be hard to replace by machines in the long run. We do not need to panic much, but it is necessary to have a certain sense of crisis, be clear of our ability and social needs, just like Yaping Wu mentioned, education and skills are powerful tools for improving competitiveness.

Focus on the voice of the public--Analyze survey data

9th July-11th July

When we want to look at things on a large scale, data is sound when compare with individual cases, therefore, an online questionnaire among 124 middle-aged people in Jiangyin, Jiangsu, China. The questionnaire consists of six questions, four multiple-choice questions, and two open-ended questions.
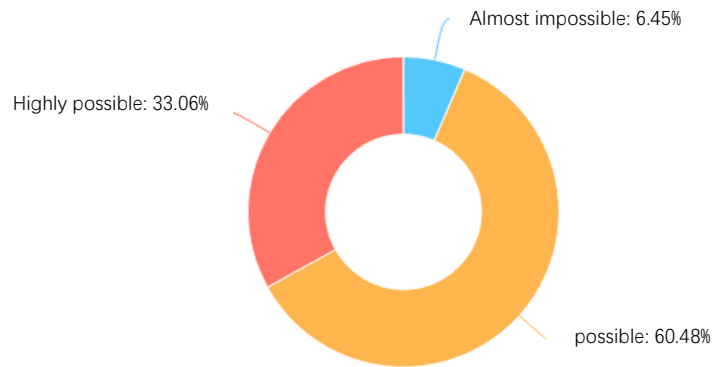

Figure 1: the attitudes about if labors will be replaced by artificial intelligence. The data value is kept at 1 significant figure. There is ± 0.1margin errors. Consider that confidence level is 95%.

Among the 124 survey samples, only 7% of them believe that the current labor force is unlikely to be replaced by machines, 60% of people maintain neutrality that machines may replace the labor force, and 33% believe that the machine will replace the current labor force. From the question in the questionnaire, it is not difficult to see that most people still think that they will achieve in the future.

In another question, "Do you think the unemployment problem links to education or education level?", nearly 84 percent of people chose yes, which may indicate that employees are laid off due to the incentive reason--education in some extent.

Authoritative release

According to the results of the questionnaire, the public is very anxious or even confused, which is manifested in the inability to adapt to uncertain factors and feeling helpless quickly.

Can we conclude right now that technological advances are bound to lead to mass unemployment? The answer, of course, is no, because as new technologies destroy old jobs, new jobs will be created.

The perception is that with the widespread use of machines, a large number of new industries will emerge. Most of these industries revolve around the latest technology in artificial intelligence. Therefore, the bleak future of artificial intelligence is not a hopeless one, but one in which many new industries will emerge. Abilities such as learning, communication, memorization, perception, innovation can form a huge industry everywhere. Human research on itself will become the hottest industry. Besides, technological progress and business development around artificial

intelligence will become major industries. The organization for economic cooperation and development (OECD) analyses how technological progress contributes to job creation, as well as directly destroying it.[2], in other words, it means demand for skilled, high-quality occupations will rise.

However, the relationship between machines and labors is not necessarily to be "substitution", as the ("father of the world AI" Terence Shenovsky said in an exclusive interview with the "2019 Future Conference" held in Yangpu): "1997 When "Deep Blue" defeated the chess world champion, some people said that "human beings will be replaced by computers."

Nevertheless, people began to play chess with computers and turned into better players. Artificial intelligence is also replacing some occupations and generates new positions at the same time, such as safety monitoring, sensor technology supply chain, etc. In the medical field, doctors judge the lymph node biopsy slice images of metastatic breast cancer, combining deep learning with human expert predictions, with an accuracy rate of 0.995, which is almost perfect. Maybe we can conclude that this shows that in the future, humans and machines will be cooperative rather than competitive.

According to (the big data of Zhilian recruitment network security talents), from the perspective of monthly index changes in the demand for security talents, the demand index has been growing at a high rate since October 2018. In June 2019, the market demand for cybersecurity talents increased by three times compared with July 2018, and the growth rate was amazing.

Therefore it is not difficult to find that today's machines are being integrated with labors, and employment panic still exists but is constantly improving.

Reference

[1] 杨晶,张颖达. 极飞农业引领植保无人机行业发展[J]. 农机市场,2016,(4):38-

[2] Organization for Economic Cooperation and Development. Technology, Productivity and Job Creation[R]. Paris, 1996.