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"ROBOTIZATION" AND "LABOR DOWNGRADING" - BASED ON THE RELATIONSHIP BETWEEN TECHNOLOGY AND WORKERS IN CHINA

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ABSTRACT

In recent years, against the background of the disappearing "Demographic dividend" and "Labor Shortage," "Robotization" has started to be carried out in various parts of China. Robots benefit China's manufacturing industry by achieving a "technology dividend" instead of a "demographic dividend." However, are Chinese workers benefiting from this technological transformation and upgrading? By examining two different types of manufacturing industries in China's Province S, this paper uses Marxist analysis to reveal the reality that "Robotization" has led to the "de-skilling" of workers and further exacerbated "labor degradation." Workers not only find it challenging to improve their skills in the "machine change" but are also further subject to the remote control of machines and capital. Therefore, protecting workers' rights and interests and making workers truly the masters of machines are the top priorities in the wave of "Robotization".

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1. Background.

In recent years, "Robotization" has become an important trend in China's manufacturing industry development. Undoubtedly, the automation upgrade and industrial transformation represented by "Robotization" has to a certain extent, alleviated the problem of "labor shortage" and "difficulty in recruiting" in China's manufacturing industry and made it possible to replace the "demographic dividend" with "technological dividend." The "technology dividend" replaces the "demographic dividend" and becomes possible.

However, what exactly has "Robotization" brought to Chinese workers? As China is in a critical period of economic transformation, there is a relative lack of research on machine replacement, the relationship between robots and workers in China, and the reality and future of machine replacement. U.S. labor market data suggest that for every other robot among 1,000 workers, the wage level decreases by 0.42%, and the employment-to-population ratio decreases by 0.2% (Acemoglu & Restrepo, 2020). Unemployment, social placement of the middle and low surplus labor force, and in-employment problems caused by the technological drive have gradually emerged with the advancement of "Robotization" in China. However, in general, they are still in the stage of observation and exploration, such as the sociological examination of "Robotization" in recent years. For example, in recent years, sociologists have analyzed the dynamics of the transformation and change of labor-intensive enterprises in China by examining the labor sociology of "machine for man." Or they have made a sociological

analysis of "machine for man" factories, examined the impact of technological upgrading on labor, and considered the impact of technological progress on the manufacturing industry and the problems it may cause. Alternatively, they have rethought the relationship between people and technology through a philosophical analysis of the concept of "machine for people" (Xu & Ye, 2020; Pan et al., 2019). The philosophical deconstruction of the "Robotization" approach has been used to revisit the relationship between humans and technology (Xu & Ye, 2020; Pan et al., 2019; Fan, 2022; Shen, 2019). Therefore, it is crucial to explore the impact of the current "machine change" and technological upgrading on workers in China and to examine the ways of workers' coping.

This paper examines the relationship between Chinese technology and workers through questionnaires, interviews, and data analysis in two factories in T and J cities of Province S, China. "The study reveals that technological upgrading can bring about upgrading of workers' level, and further reveals the impact of "machine replacement" on workers' revolutionary. In addition, we will reveal the natural disintegration of workers' revolutionary and subjective status and their ability to fight for their rights.

2. Marxist analysis of the relationship between technology and workers

2.1. The capitalist application critique of machine technology

From the perspective of classical Marxist authors, focusing on the social utility of machine use and the potential relationship between man and technology is a crucial element of the critique of machine technology. For a long time, there have been various perspectives and theories about the critique of the capitalist application of technology, but in summary, there are the following aspects.

First, machines have increased the degree of capital's exploitation of workers. Marx once quoted John Mueller's opinion in his book Political Economy: "It is doubtful whether the invention of all existing machinery has relieved anyone of his daily toil." To this, Marx replied that machines are only used under the capitalist mode of production to produce surplus value. Because of this, they are used under the capitalist system to exploit the workers, thus making them poorer and poorer. The use of machines further exploited the surplus labor of workers, expanding the inherent field of capitalist exploitation and increasing the degree of exploitation. In addition to young and male solid laborers, many children and women were also forced to become the reserve army of industry. Thus, all workers, regardless of sex and age, were subject to the direct rule of capital. The machine further extracted the surplus labor time by shortening the necessary labor time, thus increasing the degree of exploitation.

Second, using machines did not liberate workers' labor but intensified their labor intensity. In the era of machine industry, capitalist production was based on the premise that workers sold their labor, and the division of labor made workers possess only specific skills. Machines entered the production process, and a large amount of labor was replaced; the exchange value of labor disappeared along with its use value, and part of the working class was turned into a surplus population by machines (Wang, 2008). The capitalist application of machines further intensified the labor intensity of workers, "one way was to increase the speed of the machines, another was to expand the number of machines tended by the same worker, i.e., to expand the scope of its labor." The machine not only replaced the muscular work of millions of people but also made the labor of the workers who operated it increase alarmingly, even three times more than when the machine was not put into use in the first place!

When workers are treated as "living appendages and incorporated into dead institutions," they are further plunged into endless misery. The worker is forced to become a "component" in an integrated assembly line, repeating the same mechanical process repeatedly. In this way, workers not only transformed themselves into part of the local machine but also made them dependent on the capitalists. Their subjectivity was greatly weakened, and their labor intensity severely depleted their health, weakening their confrontation with capital and reducing their ability to fight.

Finally, the machine conspired with capital to intensify capital's dominance and severely weaken workers' skill levels. Marx's statement in his Economic and Philosophic Manuscripts of 1844 that "the value added to the world of things is proportional to the devaluation of the world of man" truly reflects the complicity of machines and capital: on the one hand, it accelerates the accumulation of material wealth, on the other hand, it intensifies the dominance of capital, further alienates workers and puts them in a situation of subjective devaluation.

The use of machines and the complicity of capital created a considerable accumulation of commodities and, in a century, created "more productive forces than have been created in all generations." Instead of "freeing human hands" and "making it easier for people to enjoy themselves

and pursue the true meaning of life," as the capitalists advertised, the use of machines fixed workers in simple and monotonous labor positions for life. Eventually, it reduced them to Instead, it fixes workers in simple and monotonous labor positions for life and eventually reduces them to monotonous skills, single actions, and stagnant personal development, becoming appendages of capital and surplus value production machines. The worker is forced to work intensely and follow the machine's rhythm, eventually becoming a puppet of technological progress and capital development.

2.2 The Theory of "Robotization" in the Perspective of Capital

The debate on "Robotization" in China is mainly about the "unemployment problem," "class problem," and "human destiny problem "(Pan et al., 2019). Unlike the general philosophical reflection, in detailing the reality of the "Robotization" problem, Marx's Capital is actually an exploration of the relationship between man and man.

In Capital, Marx's discussion of the "technological path" of the three-stage development process of the production of relative surplus value is a discussion of "Robotization" and the dialectical development of humans and technology.

First is the collaboration stage. Collaboration means that many workers work simultaneously and in the same space to produce the same kind of goods under the command of the same capitalist. This form is the primary form of relative surplus value production and the historical starting point of capitalist production. However, as the number of workers involved in collaboration increased, the command and further involvement of capital became necessary for collaborative labor. As a result, the labor force began to combine with various tools of production, and the form and complexity of the tools of production became progressively more complex and diverse with the depth and breadth of capital penetration. Thus, in the collaborative stage, the widespread use of labor tools marked the initial combination of labor and technology.

At the collaboration-based division of labor stage, workers of different types of independent crafts are united in a single factory under the direction of the same capitalist, and the product must pass through the hands of these workers before it is finally made. On the one hand, Marx affirms that the division of labor, as mentioned by Smith in The Wealth of Nations, is conducive to saving time for a job change, reducing non-productive losses, and improving the specialization of labor tools and workers' proficiency. However, on the other hand, he also points out that the final result of the division of labor is the formation of "a human organ of production," which is undoubtedly an alienation of labor. This is undoubtedly an alienation of the workers. Thus, at this stage, the worker is transformed from an individual who participates in labor through collaboration to a "part" of the production process. Marx examines the transformation of the status of the worker and the machine as the level of technology rises. The worker is alienated into an organ of production and begins to have no independent status.

At the stage of machine-based production, the working class was reduced to a "dead institution" of the factory production system. Marcos argues that in the extensive factory system, productivity is no longer driven by workers' proficiency, experience, or creativity but by science-driven technological practices and a shift in management. Machines squeeze out large numbers of workers, and the industrial reserve cannot step into the production process, causing further impoverishment of the proletariat. In order to further produce relative surplus value, continuous technological progress allowed machines to eliminate all moral and natural boundaries of the working day —"thus creating an economic anomaly in which the most potent means of shortening labor time becomes the most reliable means of turning the entire living time of workers and their families into labor time subject to the value of capital appreciation at the disposal of capital. "

According to the total capital formula: G-W-G′ (G′= G+ΔG), the main goal of capitalist production is to obtain more of the increase in G′. This "increase (ΔG)" is referred to as surplus value in Marx's theory of surplus value. In order to maximize capital's capture of surplus value, capitalists must find ways to overcome the limits of labor's physical condition and social morality and law on profit maximization. To overcome these difficulties, capitalists introduce machines and use more advanced technology to achieve remote control over laborers, thus making technology a vital tool for value appreciation.

However, it is difficult for workers to realize that the oppression of workers by technology, including the "seizure" of their jobs and the division of labor dictated by technology, comes from the capitalist relations of production, not technology itself. Technology itself is not class-attributable or

oppressive, but once it is in the hands of capitalism, it becomes a tool for oppressing workers and exposes them to further hidden exploitation and control by technology in collusion with capital.

In summary, the "Robotization" in Marx's Capital, under the gradual control of man, eventually changes from the initial "condition" role of the machine to a "replacement" role. It replaces human beings' physical and mental work, attempting to imitate their physical and mental strength. Marx's criticism of "Robotization" is precisely the fear of further exploitation of man by capital through technology, intensifying the confrontation between man and machine and causing severe unemployment, as well as the fear of machine subjugation of man and man becoming a machine appendage.

3. Methods

In order to study the current situation of "Robotization" in China and whether the "Robotization" caused by technological upgrading triggers the phenomenon of "labor downgrading," this paper adopts a field survey. Through interviews, questionnaires, and data analysis, two different types of enterprises were selected in Province S, China: city J and city T. City J is a Sino-Japanese coal furnace manufacturing industry and City T is a garment factory.

The time to adopt the "Robotization" approach differs between the two selected industries, with J gradually adopting intelligent machinery to replace the assembly line after the release of China's relevant, intelligent industrial policies. At the same time, T's garment factory gradually underwent assembly line renovation in industrial upgrading and the release of national policy directives in recent years, and gradually underwent Intelligent transformation.

The interviews included the daily work of the interviewed workers, their views on the replacement of workers by "intelligent" machines such as robots, the basic situation of the factory, and the change of labor skills as a result of the adoption of "machine replacement," and the assessment and future expectations of the factory workers. The interviewees' privacy concerns were also addressed.

All interview transcripts were strictly managed and protected and were anonymized by the researchers to protect the interviewees' privacy.

3.1. Manufacturing Industry in City J

Since 2005, J, a well-known coal producer and exporter near East China has invested heavily in the construction of dedicated sulfuric acid treatment and new coal furnaces and their supporting industries. Since the spread of clean energy and clean technology, J has invested in its major Sino-Japanese joint venture coal furnace producers to shift to clean technology for coal processing, coal conversion, clean emission of pollutants, and waste processing equipment. Since 2010, the city has gradually upgraded the automation industry and "Robotization" conversion. By 2022, the City J stove production plant has formed a labor production line of "industrial robots as the main - operating workers as a supplement." It reduces production costs, significantly improves work efficiency, and becomes complex and diversified production fields and stove supply channels widely acclaimed in the industry.

Take the City J stove production workshop as an example; we observed that the production workshop is dotted with several small robots. After equipping the required production materials, the robot will automatically run to the welding station following the set program and memory function. It can accurately stop at the need to weld the station point, after which the induction device at the station point starts the handling robot, automatically grab the required materials, and through the material transport line to reach the next place of a welding robot. The entire operation takes only a few seconds and operates around the clock.

According to the director of the technical quality control department, "The relevant robots are classified, and all have special task points for docking, which can replace an average of 50 workers' operations, but the daily completion is much higher than the manual operations in the past." "Job cuts are certain. After all, now that labor costs have increased, robots replacing manual posts is also a matter of time." Another workshop leader told us that the stove production's next step is to continue to expand the construction of workshop to achieve an average of only one to two workers per workshop:

"...Welding, assembly, painting, and other work, the previous need for manual quite a lot, now basically robots to do ... some of the current operations still needs manual, such as some manual remote-control work, quality inspection ... However, the future of a larger area of smart factory or zero-labor factor, which is sure to achieve."

According to the relevant foreman and the person in charge, and interviewed the relevant operators, we found that the introduction of "Smart Workshop" and robots did not make the product production process itself has changed. However, the workers' work content has changed significantly. In the past, there was a unique "label paste" assembly line that a "robot arm has entirely replaced." Workers only need to place the label in a special box. After starting the machine, the robot arm will automatically complete the task with the conveyor belt. Workers only need to keep an eye on the essential operation of the conveyor belt and change the stickers at any time. However, workers believe that using "robot arms" and the like does not make the work easier but requires more meticulous attention to their time. This Sino-Japanese Joint Venture not only undertakes part of the domestic supply of ordinary and clean coal furnaces but also exports to the outside world. Therefore, the production plant's high output and fast pace require workers to keep up with the machine's rhythm, and there is even a phenomenon of longer over time. "Over the past few years, I found that people not only did not become much easier, but a little more tired ... machine to deal with each coal furnace is a fixed time... such as five seconds to install, one second to paste the strip, accordingly, although my work looks single, boring, but almost cannot stop, follow the machine running all the time."

In recent years, City J's coal furnace production and manufacturing industry, driven by the high speed of intelligent and machine-based production, has also undertaken the design and sale of civil high-pressure combustion furnaces and the carriage of electric power facilities, mining explosion-proof electrical products. In the past, workers who were exposed to harmful substances to health in the production process, such as dust, paint, fuel, and chemical desiccant, were gradually replaced by machines. Workers who used to be engaged in such work usually had higher wages but faced the fundamental problem of lower wages or even direct unemployment because they were "replaced by machines." As a result, this has led to discontent among some of the older workers. However, the existing trend is that skilled workers come to the factory to do a single, dull, unskilled job, and more of the manufacturing industry's costs are spent on maintaining machinery and equipment and regular maintenance. However, this is more cost-effective in the long run than paying workers' wages. In this way, although "Robotization" is facing resistance from some workers, there is no doubt that the industry is still hiring. However, the number of temporary workers (at a rate equivalent to the local minimum wage) has increased significantly, even using school-enterprise cooperation programs and summer internship programs to recruit short-term student workers. In the era of "Robotization," this way of employing workers has significantly saved enterprises' labor costs and created unprecedented sales records and huge profits.

3.2. City T Garment Processing Factory

City T Garment Co., Ltd. is a model garment factory established in 2009 by Province S Cotton Textile Group Company, focusing on the trade and processing of denim garments. Although this garment factory has strong product development and manufacturing potential, with the difficulty of recruiting workers in recent years, the company has gradually introduced intelligent production machine tools, automatic cutting tools, and intelligent hanging systems since 2017 until now. Furthermore, it introduced about 700 sets of appropriate sewing equipment from Japan and Germany, as well as various types of washing equipment and other intelligent and automated systems. Since 2021 The City T Garment Factory, which invested about 6 million dollars in implementing "Robotization," has achieved a 200% increase in output value compared to the pre-epidemic level, despite COVID-19. The effectiveness of "Robotization" is evident.

Although the garment factory has been trying to popularize automated production in recent years, it is still inadequate compared to the coal furnace manufacturing in City J. Despite the introduction of intelligent equipment and the construction of several automated production lines, the research found that the garment factory still recruits a large number of workers in the society, and even encountered "recruitment difficulties" and "labor shortage" frequently in recent years.

The interview process shows that, first of all, although the garment factory currently has intelligent assembly lines and automatic systems, they cannot wholly replace manual labor, especially in the current epidemic, orders have plummeted, and in this case, manual labor is more flexible and less costly; in addition, in recent years, the garment factory needs to import dyes and fabrics from outside Province S , and factors such as transportation costs and seasonal changes in fabric prices have made the garment factory Whether it is an automated assembly line or a manual assembly line, it faces the same problem of production scale

constraints; finally, at present, the garment factory does not focus on intelligent capital investment, most of which is invested more in external publicity, intelligent promotion, sales and live advertising, while the option of purchasing the most advanced equipment is often set aside, resulting in the garment factory's "Robotization "In recent years, the problem of "recruitment difficulties" has become significantly bigger for garment factories, with long-term workers not being cost-effective, short-term workers challenging to establish trust, and wage fluctuations difficult to attract young people, also leading to the many problems garment factories are currently facing.

"There is no difference ... I am over here (manual assembly line) so dry, over there (automated assembly line) but also to adapt to the speed over there, (work to do) more nervous ... but the wage is no difference ..."

"Not as good as on this side (manual assembly line). We can still help each other."

The investigation found that the garment factory in City T, despite the popularity of more intelligent production equipment and "Robotization" and other assembly lines, is different from its publicity. Conversely, "Robotization" did not recruit more skilled workers as in J. All recruits were randomly engaged in a single manual or automated assembly line job, responsible for simple work such as edge materials, general cutting, folding, and labeling. On the other hand, despite adopting intelligent production equipment, the garment factory is still recruiting many workers but is facing difficulties in recruiting workers. In recent years, most workers have been recruited through school-enterprise cooperation and short-term recruitment. Under the background of "Robotization," some enterprises are not fully benefited from intelligence and automation, but there is a more hidden severe crisis of cost and labor.

4. "Robotization": from "de-skilling" to "re-skilling"

Although there are debates about whether "Robotization" will cause substantial unemployment or affect the employment structure, a real problem that cannot be ignored is that under the background of continuous development of new technology and industrial transformation and upgrading, the number of workers in the same production line is reduced to a certain extent.

4.1. The reason for promoting "Robotization"

Based on the findings of the research in cities J and T, on the one hand, facing the competition of global capital in the past decade and the disappearance of China's demographic dividend, the Chinese "world factory" model based on the former cheap labor is facing a new round of inflection point (Xu & Ye, 2020). The use of current automation technologies and the critical role of machines in the labor process are essential solutions to advance China's industrialization process. The president of Shenyang Xinsong Robotics Automation in China claimed at the 2015 World Robot Conference that "robotics is the crown jewel of the manufacturing industry ."With the current increase in labor costs, soaring manufacturing costs, and the absolute need for industrial transformation and upgrading, the use of "Robotization" and machines to reduce labor costs has become a real need.

Secondly, from the side of workers, the phenomenon of a "shortage of workers" in China is apparent, and the trend is getting worse. China's 14th Five-Year Plan (2021–2025) is to "highlight the characteristics of vocational and technical education and vigorously cultivate technically skilled talents." However, according to the survey, manufacturing workers need to change one job every 1.6 years on average, meaning that college graduates need to change their next job in less than two years. They have to change their next job in less than two years to maintain their employment status, yet the quality of employment is not high. In addition, the platform economy and odd job economy born with the sharing economy have further intensified the "short-time work" trend. The flexible employment system and low entry threshold have made many people use flexible employment to support their families. The platform and odd jobs economy do not need to enter the workshop to do a single tedious job. However, they are still subject to the "hidden exploitation" of surplus value by capital.

This trend further leads to the intensification of the "labor shortage" phenomenon. According to the reality of data from the Chinese government website and KAIYUAN SECURITIES CO., LTD, since 2020, some coastal manufacturing industries have had severe problems of "recruitment difficulties" and have had to take various measures to remedy them. The data for the first half of 2020 shows that the number of migrant workers has decreased by 5 million compared with the same period last year. The labor supply has decreased, so the labor shortage problem of the traditional manufacturing industry is quite severe. In recent years, with the rise of the new generation of workers, rights protection and group

power has been rising (Huang & Sharif, 2019; Cai, Li & Feng, 2009; Liu, 2011). Besides, the workers' demands for a higher salary, on-time payment, and a better labor environment are rising, which also brings tremendous pressure to the enterprises' employment. Therefore, from these perspectives, enterprises are more willing to pay a certain amount to promote "machine replaces human" to make up for the current "labor shortage" situation.

Finally, technological improvement makes "Robotization" to a certain extent, prevent labor-intensive industries from moving out and protect local industries. In recent years, the U.S. has demanded a "return of manufacturing" to ensure that the manufacturing industry, which creates many jobs, can stay in China and maintain the "return of employment ."Therefore, as China's technology develops and gradually crosses the stage of labor-intensive industry development, there is a possibility of further intensive industry relocation. For local governments, the more pressing task is to ensure the growth of regional GDP, or at least to retain industries and prevent further relocation to regions such as Southeast Asia (Huang, 2021). To a certain extent, "Robotization" technology has tremendous advantages over manual assembly line operations. It can reduce labor costs through technological upgrading, assembly line transformation, and industrial chain transformation, ensuring that labor-intensive enterprises continue to improve their efficiency under large machine industrial operations. Furthermore, in this way, it can maintain labor-intensive enterprises in the local area. As long as they stay in the country, they can solve the employment problem for our country and ensure a good and stable environment for economic development, as well as promote the transformation of "Made in China" to "Made in China." Moreover, it can continuously improve workers' skills based on maintaining employment. In this way, the "technology dividend" replaces the "population dividend" and is an important reason to promote the current "Robotization" in China.

4.2. Skills change in the "Robotization" process

However, it is evident that although the trend of "Robotization" is irreversible, the skills of most workers are not significantly improved in this process. For the vast majority of workers, the obvious consequence of "Robotization" is that either worker is forced to lose their jobs, or they lose control of the division of labor and become the "companions" of the machines. The above studies in J and T are about the labor division of labor and the labor force.

The above findings in J and T reflect the change in workers' skills in the "machine change." Moreover, the "de-skilling" phenomenon in J is evident in the fact that the core technology of coal furnace processing has been replaced by sophisticated technology, and robots can do the whole process. At the same time, despite the recruitment of production workers and skilled workers, the production of coal furnaces in City J generally only operates basic and simple jobs. Jobs requiring higher-order skills have been replaced by robots, while the remaining unskilled jobs, such as remote-control work or replenishment of goods, are assigned to workers. Even regular maintenance is done by outsiders, unrelated to the factory staff. It can be seen that the manufacturing industry in J has an evident phenomenon of "de-skilling," and this phenomenon of "de-skilling" has further demanded, "reskilling." This "de-skilling" phenomenon further requires "reskilling." The need for outsiders to maintain and repair intelligent machinery and production lines in the manufacturing industry has increased costs to a certain extent. The city is considering introducing higher-skilled workers to repair high-end factory equipment regularly.

The change in skills in T is different from that in J. Despite adopting intelligent production lines and introducing more machines, there is still a need to recruit many workers. A closer look at the garment processing industry in T shows that some skilled workers are still "attached" to the machines. They are responsible for simple tasks such as operating the machines, changing objects such as stickers and labels, or operating the machines, and there is an apparent phenomenon of "de-skilling." In addition, the garment processing factory still has a fragmented division of labor, even in the intelligent assembly line subdivided into buttoning, hemming, pocket binding, and other operations. This work makes them not only perform simple tasks day in and day out but also have to participate in fragmented processes. The Taylorism management critiqued by Braverman still plays out in the T-city garment processing factory today. Including the separation of the labor process from workers' skills, the separation of hand-brain (conceptual and functional), and the total control of managers over the labor process (Braverman, 1974; You, 2006; Wang, 2011). Accordingly, we assert that "de-skilling" is still the primary trend facing workers in T-city garment factories, but this "de-skilling" is still in a transitional stage and still requires

the participation of front-line workers. In addition, the "reskilling" phenomenon in the garment factory in T is not significant, as the factory appears to be recruiting more skilled workers. However, the skilled workers are still engaged in low-end jobs and are "subordinate" to the machines, and even some of the "reskilled" workers' skills have not been brought into play, showing a complete decline in skills or no progress at all.

So, are Chinese workers facing "labor relegation" and further confirming the existence of "skill relegation"? According to the author's fieldwork, this is indeed the case. Unfortunately, the "reskilling" of Chinese workers has not been promoted to a large extent by the "machine change," but rather, the "de-skilling" has deepened. On the contrary, it has further deepened the degree of "de-skilling" and accelerated the "labor downgrading" and "skill downgrading."

5. Are Chinese workers facing a "labor downgrade"?

5.1. "Labor downgrading" and "skill downgrading"

According to the research in J and T cities, the maintenance cost, repair, and maintenance of "Robotization" is a considerable cost for the related industries. However, there is no doubt that it is almost impossible for factories to train their workers' technical level to enable them to undertake in-plant maintenance work. They would instead choose specialized maintenance personnel from outside or recruit professional technical personnel to carry out maintenance and service of related machines or intelligent factories. They believe that these purchased services can stand the test of time and are unlikely to break down or become inoperable quickly.

"... this automated equipment cannot often need to repair ... ugh ... those production side is also paying attention to the reputation, and we can do their simple maintenance, such as keep clean, oil lubrication, ... (we) will not deliberately train our workers to do this, they all have their work to do!"

When asked if the respondents felt that their skills had improved over the years, most said "nothing should have changed" and a small number said "it has deteriorated" because "they are always doing repetitive work and are very skilled, but only in this area. I've always been good at repetitive tasks, but I'm only good at this." Others say they live like a machine:

"I was very good at making sleeves before I came (this factory), but the machine is faster than me, so I have no choice but to give the machine a hand (laughs), and sometimes I even have to match the speed of the machine ... it does not eat and drink quite a lot of spirit, but I am desperate to catch up with (the speed of machine) ... sleeve technology not to say regression, but not much progress, it is the same (in place) ..."

It is clear that the real problem of "Robotization", through the continuous refinement of the social division of labor, completely destroyed the natural division of labor under the cooperative relationship; in addition, workers with certain skills in the operation of professional machines, began to repeat a single job, in the long run, the original technology is gradually ignored, completely become the machine "appendage". "Kennedy (1986), by citing examples of manufacturing dummies, argues that the real furniture maker is the one who has imagination, drawings, tools, and materials prior to manufacturing, a combination of both utility and aesthetics; once this becomes a process that can be made with a constantly wiggling finger in front of a machine, it is, at best can only be called proficiency. Thus, the “Robotization” strips away the skills of the worker, and what Marx calls "technology is nothing but the externalization of human nature", and the nature of the worker is even stripped away by technology.

Huang (2021) points out that there has been an important problem in China's manufacturing industry, which is mainly dependent on the "demographic dividend". Companies have pursued short-term benefits and have been reluctant to invest in training workers. According to the survey data of China in 2017, only 5% of the total number of workers are senior skilled workers in China, which is much lower than 40% in Japan and 50% in Germany, and about 71.43% of enterprises in Zhejiang Province of China reflect the shortage of middle and senior skilled workers; even in Tianjin, a municipality directly under the Central Government of China, the supply and demand ratio of senior skilled workers has reached 1:10. With the increasing level of China's manufacturing industry, the shortage of senior skilled workers is as high as ten million, and senior skilled workers are indispensable for entering the high-end market at home and abroad. "Ernst (2018) points out that the shortage of skilled workers is bound to cause serious obstacles to "intelligent manufacturing", and it is necessary to improve workers' skills. The EY survey also concludes that the current shortage of skilled personnel should be a major concern for the smart manufacturing industry, and that the lack of skilled personnel has led to a

disconnect between this field and many factory operations at the practical level, despite the increasing range of smart applications.

Accordingly, we seem to be able to see a "machine paradox" in this. On the one hand, "Robotization" is in full swing and even tends to replace workers completely, but on the other hand, companies need to recruit a large number of skilled workers to participate in front-line production. As City J interviewed workshop manager frankly:

"...machine is not omnipotent, for example, in the assembly process will be a tiny original completely installed into the tight structure, there is no such accurate machine, we have been relying on manual completion for so many years ... robot although seemingly fast, but in fact, in many aspects of Many aspects are simply not as flexible as human hands."

However, he also admitted that:

"The biggest shortcoming is the shortage of talent ... is unlikely to have time to train recruited workers, and the cost of recruiting highly-skilled personnel is too high, so we have to weigh the choice of regular maintenance and overhaul, or sometimes simply do not use the machine, is still a manual assembly line ..."

The Craftsman's spirit that Chinese society promotes still seems to lack the necessary soil to thrive. On the one hand, the current factory management methods are one-sided, with blind competition and quick profits, only for short-term rewards. Encouraging people to work hard becomes an empty slogan, the enthusiasm of technical workers is discouraged, the technical level cannot be brought into play, and the technical ability is obviously weakened; on the other hand, it is obvious that the status of workers is still not high, some companies or enterprises have become completely the boss's private property, and difficulties are often borne by workers, in this way, Craftsman's spirit almost becomes a slogan, and it is even less likely that the boss is willing to spend time and energy to train his employees, and everything becomes perfunctory, relying only on the tedious and monotonous work and the artificial rules of the company to maintain the operation of the enterprise. In the long run, workers face "skill downgrading" and the phenomenon of "de-skilling" becomes more and more obvious.

5.2. Labor control and labor resistance

The results of the survey in J and T show that "Robotization" has further controlled the labor process of workers, and the manufacturing industry in J has a very strict work schedule, even down to the time limit for installing and reviewing each small part, while in T has a strict hierarchical management, with each worker having a dedicated workshop This series of designs divide the workers' sense of resistance and make it difficult for them to unite to defend their rights and interests; at the same time, the "Robotization" has gradually marginalized the skilled workers and further weakened the workers' control over their own labor process. At the same time, "Robotization" has gradually marginalized skilled workers, further weakened workers' control over their own labor process, and workers' salary level has decreased instead of increased, and the employment methods have become flexible and diverse. protect their legitimate rights and interests.

Although workers in Europe and the United States have experienced the Luddite (1811-1813) that destroyed machines in the world's history, as well as actions such as the 20,000-worker strike at Fiat's Turin plant in Italy in 1980 to protest automated layoffs, and the 1972 strike at GM's Lodz City plant in the United States, there were few worker protests at either plant during this study.

The results of the study show that workers do have dissatisfaction with "machine change". Most of them indicated that this "machine change" has affected their wages, especially after the introduction of the intelligent assembly line, some workers' pay levels have been reduced and their allowances have been almost eliminated; some workers believe that resistance is usually ineffective and that the first organizers will generally face a worse outcome and may be fired directly; and some workers said that currently more summer and short-term workers are recruited, and factory employees do not eat and live together year after year as they did in the past, so they are emotionally unfamiliar with each other and have less contact, and it is also difficult to form a united force, and the economic development has slowed down in recent years, so it is difficult to find a job once they quit, thus examples of workers' actions are rare and almost impossible to see in these two research enterprises.

Accordingly, we should acknowledge that the current "machine change" in China does have an obvious "de-skilling" effect on workers. "However, workers are still exploited by capital, and their workload is not even reduced by the "machine change". At the same time, the factories have further

divided the technical skills of workers and further weakened their internal bargaining power through the setting of management levels and the detailed division of labor, which further dissolved the revolutionary power of workers, not to mention the struggle for rights and class action.

6. Conclusions.

The gradual relaxation of China's fertility policy is a positive response to the current trend of ebbing demographic dividends. According to the outline of Made in China 2025 issued by the State Council of China, to realize China's progress from a manufacturing power to a manufacturing power, the manufacturing industry will become the key to the next round of competition in the era of the new technological revolution. As the price of labor and, raw materials, land costs continue to rise, as well as the transformation and upgrading of the manufacturing industry, the emergence of a new generation of workers "broken generation" phenomenon, enterprises are more and more inclined to "Robotization", take the "technology dividend "instead of the "demographic dividend" of the road.

It should be noted that at present, a large number of low- and medium-skilled jobs are being replaced by machines, and mass unemployment is likely to occur. However, on the other hand, the phenomenon of "labor shortage" has also emerged in China's manufacturing industry, and the new ecological workers would instead choose the flexible platform economy over the single tedious assembly line job. One phenomenon is being overshadowed by another seemingly contradictory phenomenon, which still reflects the exploitation and alienation of labor subjectivity by capital through "Robotization."

Most Chinese workers have not been allocated enough technological dividends because they have not been effective "technologically upgraded" and continue to work day after day in manual and intelligent assembly lines. "De-skilling" and even increased labor control, accelerating the "skills degradation ."Companies usually do not choose to train workers but focus more on how to get more revenue at a lower cost; workers in the technology upgrade in the same place and even lead to their labor level decline. The new technological revolution era has not brought substantial changes to workers, who seem to become more hurried, without any significant increase in income, and even dissipated the revolutionary and rebellious spirit of workers due to technological interventions and divisions.

We prove that "Robotization" has not improved workers' skills but even further alienated the relationship between workers and technology. Robotization weakened workers' sense of subjectivity and reduced them to the "subordination" of machines. The root of the exploitation and oppression faced by Chinese workers in the past, present, and future lies in their inability to thoroughly understand the antagonistic relationship between capital and labor and the fact that capital has fragmented labor's struggle. For this reason, the state needs to establish a long-term vision, guide technology to truly serve people, alleviate the contradictory relationship between people and technology, and create a harmonious and typical "human-technology" relationship. Only by taking various social support measures to improve workers' technical level, individual quality and sense of ownership, and by adopting laws to protect workers' basic rights and interests, can workers become important pillars in technological development and truly become the masters of machines. In addition, giving labor a unique voice in technology development then dissolves the confrontation between labor and capital. In this way, we can make good use of technology, continuously innovate and develop, narrow the class gap, and achieve social stability and sustainable national development.

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