

New Production Relations Driven by New Quality Productive Forces: Trends, Challenges and Countermeasures

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Under the wave of the fourth industrial revolution, the development of new quality productive forces represented by intelligent technology will shape the form, structure and nature of new production relations, such as the reduction of the coordination status of human-human relations and the increasing importance of the coordination of human-machine relations. There will be a fundamental revolution in ownership relations, the form of enterprise organization, the way in which they are distributed and the structure of management. The assumptions, logic, and paradigms of economics that are compatible with the first three industrial revolutions will encounter great challenges. To this end, it is necessary to comprehensively deepen the reform of the actual economic system and promptly adjust the capital system, industrial policy, employment and distribution policy, market policy, education policy, science and technology policy, and talent policy that are not suitable for the development of new quality productive forces.

Keywords: new quality productive forces, new type of production relations, industrial revolution

After more than 40 years of reform and opening up, in the new round of the fourth industrial revolution characterized by “intelligent technology”, the requirement to accelerate the development of new quality productive forces (NQPF) will likely enable China to get out of the middle-income trap and be at the forefront of world development, becoming the center of global NQPF. From following to paralleling and then to leading, the space for learning and imitation in the process of development has gradually narrowed. In order to reduce the cost of exploring the development of NQPF, we need to shape the new type of production relations that are compatible with it. In particular, it is necessary to adhere to the basic orientation of the reform of the socialist market economy, let the market become the decisive mechanism for the allocation of resources, and mainly rely on market competition to raise the level of technological innovation and realize the modernization of the industrial system.

General Secretary Xi Jinping stressed at the 11th collective study of the Political Bureau of the CPC Central Committee that “to develop new quality productive

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forces, we must further deepen reform in an all-round way and form a new type of production relations that are compatible with them". To this end, General Secretary Xi Jinping proposed that it is necessary to deepen the reform of the economic system and the scientific and technological system, focus on breaking through the blockages that restrict the development of NQPF, establish a high-standard market system, innovate the allocation of production factors, and let all kinds of advanced and high-quality production factors flow smoothly to the development of NQPF. Obviously, the problems existing in the current system and mechanism are the main obstacles that hinder the development of the new productive forces, and the market-oriented reform of factors is the main method and way to solve this problem. Practice proves that speeding up the development of NQPF is not only an issue of speeding up development, but also a proposition for further reform. Following this line of thinking, we will analyze the characteristics and trends of the new type of production relations, point out its challenges to the existing political economy theories and economic policies, and put forward countermeasures and suggestions for relevant reforms on this basis.

1. The Main Characteristics and Trends of the Evolution of the New Type of Production Relations Under the Intelligent Technology Revolution

The relationship of production is the social relationship formed by people in the process of material production, which reflects the economic interest relationship between people, including the form of ownership of the means of production, the status and mutual relationship of people in production, and the distribution state of products. Under the wave of the Fourth Industrial Revolution, the development of NQPF represented by intelligent technology will shape the form, structure and nature of the new type of production relations that are different from those mentioned above. As we all know, the Fourth Industrial Revolution undergoes a major technological paradigm change that challenges the industrial logic of the past, and will bring about a revolutionary leap in productivity. From manpower to the horsepower of the steam engine, from horsepower to electricity, from electricity to the Internet power of the digital revolution, the basic characteristics of these three industrial revolutions are to replace people's natural physical strength and part of their brain power with unnatural horsepower, electricity power and Internet power. If in the era of "network power" of the third industrial revolution, computers only assist people's mental work according to the programs and instructions given by intelligent humans, then in the fourth industrial revolution with intelligent technology as the main feature, artificial intelligence with deep thinking, certain emotions, and independent decision-making ability should not only replace human physical labor, but also replace or partially replace human

mental labor.¹ Therefore, the essence of the NQPF is the new quality of productivity represented by intelligent technology, especially “computing power”, which gradually replaces the natural labor of human beings (Liu *et al.*, 2023).

How will this NQPF require changes in the relations of production, and what decisive effects will it have? On the whole, intelligent machines will directly bear the creation and service functions of social wealth, and gradually become the core link of productivity, so that intelligent machines occupy a dominant position in the development of productivity. Abstractly, under the NQPF represented by intelligent technology, due to the embedding of intelligent machines with independent consciousness and decision-making ability, there will be four new production relations: first, the relationship between people, referred to as human-human relationship; the second is the relationship between humans and intelligent machines, referred to as human-machine relationship; the third is the relationship established based on the consensus mechanism and smart contracts, that is, the relationship between people and people through machines, referred to as human-machine-human relationship; The fourth is the relationship between machines and machines, referred to as machine-machine relationship.²

The evolution of the structure and form of the relations of production will bring about a great change in their nature, which will also require corresponding changes in the economic base and superstructure. Compared with the transformation of production relations under the previous three industrial revolutions, it has at least the following important characteristics and trends:

The first is from the perspective of ownership relations. The relationship of ownership is the most basic and decisive relationship of production. Although the ownership relationship under the first three industrial revolutions undergo tremendous changes in form, such as the development from the owner system to the modern joint-stock system, and the importance of knowledge and technology in it becomes increasingly apparent, material capital always is the core of the factors of production and occupies the dominant position of residual claims. After the intelligent machine

¹ Now there is a “Oppenheimer moment” that describes the development process of artificial intelligence, and there are two main views: one is conservative, who believes that human beings still have the ability to control the process of artificial intelligence so far, and that there is still a long time for artificial intelligence to surpass natural intelligence, and the task now is how to achieve artificial intelligence to be on par with human beings, that is, “alignmentism”. The other is the radical, who believes that general artificial intelligence is not only a question of keeping up with human beings, but a question of how to surpass human intelligence and finally achieve superintelligence, and this process is constantly accelerating, that is, the so-called “accelerationism”. The “Oppenheimer moment” is not about achieving artificial intelligence on par with humans, but about so-called super-artificial intelligence. See Zhu Jiaming, “AI is Coming—Change and Innovation in the Era of Intelligence”, downloaded at: <https://www.bmronline.com.cn/index.php?m=content&c=index&a=show&catid=23&id=8814>

² Wang Jian: *How to Know the New Quality Productive Forces*, downloaded in: <https://www.macrochina.com.cn/zhtg/20240429122299.shtml>

gradually becomes the core of the NQPF, the corresponding ownership relationship has at least two important changes: one is to establish the dominant position of intelligent machines in wealth creation, which requires a huge investment in material capital in advance, and generally only national capital or large consortia have this strength. Thus, in the early stages of the development of the new qualitative productive forces, it is possible that the sense of centrality will be further strengthened, rather than weakened. The second is the opposite force, that is, because it is human knowledge labor that dominates the production of intelligent machines, it needs to be supported by various soft production factors. Thus, knowledge, technology, management, information, data become soft means of production, and the form, content and scope of ownership are expanded, and they may require a certain amount of residual claim. At the same time, compared with the ownership of these soft contents, the status and intensity of the ownership of the material form decrease, and the importance and potential energy of the former increase rapidly.

The second is from the perspective of organizational form. The form of labor organization is the way people organize their labor, including the division of labor, the way of collaboration, and the relationship between management and workers. Although the form of labor organization under the first three industrial revolutions change from manual labor to mechanized production, and undergo tremendous changes in the scale of labor, the scope of division of labor, the degree of cooperation and the way of labor management, such as the development of division of labor within enterprises to the division of labor within global products, it still mainly depends on the natural physical and mental power of “carbon-based human”, and the limitation of the latter determines the objective boundary of labor division and cooperation. After intelligent machines gradually become the core of NQPF, because intelligent machines as “silicon-based human” have super labor capabilities that surpass human natural capabilities, unlike “carbon-based human” who have to eat, sleep, and have moods, they can work forever. Therefore, the division of labor and cooperation is completely subject to the human orders of the manager, and the labor process can be both infinitely divided and coordinated globally. Theoretically, with the expansion of the scale and scope of the division of labor, there is no problem of the exponential growth of the coordination cost of the division of labor, nor the problem of labor-management antagonism and the conflict between managers and workers affecting efficiency.

The third is from the perspective of distribution. Although with the deepening of the technological revolution, the necessity and weight of soft elements such as entrepreneurial talent, knowledge and technology gradually increase, but the non-material factors have not yet become the fundamental force that determines the fate of the enterprise, and the owner of physical capital is still the ultimate controller of the enterprise. As intelligent machines gradually become the core of new equality productive forces, will the income distribution gap be narrowed, or will it continue to

enlarge the distribution gap? To do this, it is necessary to take into account three forces that are detrimental to the equilibrium of income distribution: First, the nature of capital in the pursuit of profits will make the distribution process under the production of intelligent machines continue to be tilted towards owners who need huge capital investment. Second, because of the efficiency of intelligent machines, the first entrants in the market will have a certain monopoly advantage and enjoy the huge benefits brought by market concentration. Third, because human capital, knowledge capital, and technical capital are the first elements of NQPF, various algorithms, computing power, and data become variables that directly determine the life and death of enterprises. Therefore, the few top talents who are capable of this kind of intellectual game may gain an important position and huge benefits in the game of competing for the residual claims. It can be asserted that if the era of intelligent machines is the same as the first and second generation of the Internet era, it cannot be truly decentralized, and the pattern of property rights and profits owned by a very small number of people cannot be broken, then property rights and social wealth will be more centralized because of the emergence of higher-level artificial intelligence and Internet technology.

The fourth is from the perspective of management structure. The management of economic organizations includes the decision-making process, supervision mechanisms and incentive systems. In the first three industrial revolutions, due to the giantization, complexity and specialization of the shift to large-scale machine production methods, management coordination, the “visible hand”, become a basic mechanism to realize the modernization of enterprise management. Managers become an independent class, which has clear boundaries and opposing statuses with owners and laborers, and the internal management of enterprises presents the rigid characteristics of bureaucratic hierarchy and command. Under the production mode of artificial intelligence and intelligent machines, because machines can handle complex tasks more efficiently, the optimal size, boundaries and organizational structure of enterprises will change, and enterprise organizations will begin to appear flattened and virtualized, or enterprises will become flexible and small. As a result, the importance of people’s status and mutual relationship in production is greatly reduced, the relationship of the manager and the managed among the people within the enterprise began to weaken, the relationship of direct confrontation and conflict began to decrease, and the management and coordination relationship between people and machines is becoming increasingly dominant. Therefore, under the dominance of intelligent machines, with the sharp decline in the number of simple manual workers and the rise of the status of mental workers, people’s status in the labor process gradually tends to be equal and cooperative, and flexible management replaces rigid management. Instant office and office from anywhere become the norm, and every worker becomes an equal and cooperative node in the business network (Zhao, 2024).

In the development of the NQPF, the manifestations of the new production relations

formed by matching them are not limited to the above-mentioned relations, but are extremely complex and diversified. For example, changes in circulation patterns, revolutions in consumption patterns, changes in laws and regulations, changes in social classes and class structures, changes in ideology and culture, changes in the relationship of the state and the market, changes in international economic relations, and so on. These new types of production relations with different manifestations and their evolution trends are important issues to be studied in economics in the future.

2. The Main Challenges to Economic Theory Caused by the Innovation of New Production Relations under the New Qualitative Productive Forces

In the context of accelerating the development of new qualitative productive forces, we will soon usher in a new paradigm revolution in economics. The following is an example of the existing theoretical innovation of political economy. As we all know, the theory of political economy is based on the first three industrial revolutions, and is an empirical analysis and theoretical abstraction of the industrialization practice dominated by material capital. When artificial intelligence and intelligent machines gradually become the core of the NQPF, the logic of political economy adapted to the first three industrial revolutions will naturally not explain the laws and characteristics of the operation of production relations under the fourth industrial revolution in some aspects, and will encounter huge challenges in many aspects:

First, under the NQPF, the basic assumptions of economics about “man” will evolve from “economic man” and “organizational man” to “intelligent robots”, thus challenging the basic theoretical paradigm of economics (Jin, 2024). The homo economicus hypothesis is the most basic premise in economics, whether it is understood as “self-interest” or “self-interest and altruism coexist”, as the inevitable product of the first three industrial revolutions, it must be characterized by human rational choice and maximum decision-making. A series of economic principles and methodologies, such as the allocation of scarce resources, the pursuit of profit goals and behaviors, and the design of incentive mechanisms, should be deduced on this basis. Under the intelligent robot hypothesis, is the robot “self-interested” or “altruistic”? If an intelligent robot simply obeys human instructions, then the robot is just an agent, which is equivalent to “human-machine” decision-making. If robots have independent self-awareness and decision-making ability, then the conflict and coordination of human-human relationship may have to evolve into a human-machine coordination problem with complex ethical relationships, such as how to deal with the contradiction between the infinite production capacity of machines and the finite ability of human payment? What should I do if intelligent robots exclude natural labor? Do machines hurt humans? At present, the scientific community, whether it is a conservative “alignmentism” view or a radical “accelerationism” view, believes that in

the future, intelligent robots will have a certain ability to think independently and make decisions. Therefore, this kind of intelligent robot and economic man in the industrial era will present new characteristics such as new subjects, new choices, new behaviors, and new decision-making modes in terms of cognition, choice, decision-making, and interaction (Du and Cheng, 2021). Therefore, we can judge that when economic research accepts the thinking of artificial intelligence and intelligent machines in the era of NQPF, its research paradigm, methodology and theoretical system will undergo subversive changes.

Second, under the NQPF, the Marxist theory of value creation will evolve from the labor theory of value to the knowledge theory of value, and will this constitute a challenge to the cornerstone of Marxist political economy theory? In the first three industrial revolutions, with the increasing importance of knowledge and technology in the development of productive forces, the role of labor also shift from manual labor to mental labor. However, mental labor in this period was theoretically treated as simple labor that complemented and multiplied manual labor, and it was not an independent factor that could fundamentally replace human labor. As the unnatural labor in the era of artificial intelligence gradually replaces the natural form of human labor, its relationship with human labor become a substitutionary relationship. Can it be said that intelligent robots create value? At the moment, it is clear that it can't. Because, although intelligent robots produce material products, the intelligent robots that manufacture products or provide services are produced by more advanced human labor, and are the crystallization or materialization of human knowledge labor and mental labor. Moreover, the more intelligent the machine, the more intensive the technical knowledge, and the higher the added value of the products produced, the more difficult, high-intensity, and creative human knowledge labor is condensed. Therefore, in the ultimate sense, it is human knowledge labor that creates intelligent machines, and these machines only transfer the value of past labor, rather than create new value, so that the knowledge labor theory of value become a new form of labor theory of value in the era of intelligent technology (Yu, 2004). However, if future robots have the function of self-iteration, evolution and self-creation of knowledge, then the question of who is creating value would become very complicated.

Third, under the NQPF, the basic structure of production relations will evolve from the human-human relationship dominated by industrial relations to a structural state dominated by three forms: human-machine relationship, machine-machine relationship, and human-machine-human relationship, supplemented by industrial relations, which will change the tradition of political economy to mainly study social production relations and their development laws. It remains to be seen how much of a long-term impact and challenge this will have on the political economics. With the gradual replacement of direct natural labour with machine labour, many new features emerge in the basic structure of the relations of production. First, the human-human

relationship in the past industrial era does not need to be connected through the Internet to achieve management coordination, but the last three relationships in the era of artificial intelligence may have to be connected through the Internet or intelligent machines, otherwise it will be impossible to achieve human-machine, machine-machine coordination. This will greatly reduce the institutional friction and transaction costs of the human-human coordination. Second, with the maturity of AI technology, the past form of production relations in which human-human relations dominate the process of material production and service provision will be marginalized by AI in the NQPF relations, and will not continue to dominate and occupy a dominant position.¹ Third, the human-human relationship dominated by labor and management will lead to confrontation and conflict due to interests and other reasons, while intelligent robots do not need material interest stimulation and incentives, and industrial robots (non-consumer service robots) do not need higher-level spiritual needs such as social emotion, self-esteem and self-realization. Therefore, there will be no fundamental contradictions and conflicts in human-machine and machine-machine relations, robots cannot become the opposite of human beings, and there will be no group and class confrontation. As a result, a series of relations that are suitable for people in the past, such as equal cooperation, class stratification, subordination, management and domination, etc., are not suitable for these newly embedded relations of production. This will have an important and decisive impact on the determination of the nature of social relations of production and the relationship of the economic base and the superstructure. For example, in terms of social power distribution, if a more equal and transparent mechanism can be introduced in the application of artificial intelligence, then various smart contracts and decentralized platform design will make the distribution of resources and rights relatively fair and credible, which may promote social equity and sustainable development.

Fourth, under the NQPF, although the importance of the ownership of the material means of production decreases with the change of the connotation of the means of production, and the ownership status of the non-material means of production increases, the trend of ownership concentration and wealth concentration is more obvious and faster, and the resulting problem of social equity development will greatly challenge the theory of ownership of the means of production and the distribution theory formed on the basis of it. Up to now, the logic of ownership is based on the scarcity of “capital” employing “labor”, and only the material means of production have the qualifications, functions and capabilities of ownership, and can obtain

¹ For example, the advent of the Sora large model means that the current artificial intelligence technology has the ability to perceive, cognitive, make decisions, learn, execute and coordinate socially. In the future, the social coordination relationship under the new quality of productive forces will evolve from the management coordination between “human-human” to the coordination between “human-machines” and “machines-machines”.

the right to claim the residual. In the fourth industrial revolution with artificial intelligence and intelligent machines as the basic characteristics, the continued use of this ownership system design would not only be contrary to the trend of increasing the status of labor, especially knowledge labor, but also become the main obstacle to the development of NQPF. Meanwhile, the distribution system mainly determined by this ownership and possession relationship will put labours (including various knowledge managers) in an increasingly weak position. Under the imbalance pattern of “capital/labor” power contrast, labours are suppressed and their enthusiasm is not high, and the macro economy is also prone to serious demand shortage and overcapacity, which is not conducive to the balanced and sustainable development of the economic structure. In the fourth industrial revolution, social production efficiency has a huge potential to improve, if the distribution mechanism can not be in line with the reform of ownership relations to carry out major adjustments, the establishment of distribution according to work, distribution according to factors and distribution according to social responsibility and obligations of the organic unity of the income distribution system, then it will not only affect improvement of the level of NQPF, but also will further cause a huge economic and social crisis.

Fifth, under the NQPF, the resource allocation mechanism will shift from the coordination function of the invisible hand of the market to the automatic coordination function of intelligent machines, thus challenging the relationship of planning and the market, which is the core issue of economic system design. In the process of the first three industrial revolutions, human beings conquer and transform the unknown world in a state of very limited information. Therefore, for European and American countries, which are in the leading position in global development, any exploration in development needs to pay a high cost of “overcoming obstacles”, because there is no experience accumulated by predecessors to follow. Therefore, in the past, these countries focused on giving play to the role of diversified market competition, leaving the specific choice to entrepreneurs to explore, so as to reduce the cost of development. The corresponding system and policy choices also tend to be dominated by form of limited government and competition policy. Contrary to this trend, China opts in the past to accelerate catch-up in the form of a government-oriented role and industrial policy. For China, which was in the latecomer sequence for a long time and just caught the last train in the third “information technology” revolution, the distance and gap with the development level of the advanced industrialized countries is the basis for it to choose the “traceable” technical route and industrial track, and use the government’s power to concentrate resources for development. Practice proves that this is a model with clear information, minimal cost, lowest risk and fastest development. In today’s era of the Fourth Industrial Revolution, intelligent technology and machines create technical conditions for the realization of plannable, traceable, and adjustable socialized large-scale production, which can effectively avoid the

state of “the opposition of the organized production of individual enterprises and the anarchy of the production of the whole society” mentioned by Marx. Does this mean that a “new planned economy” can be pursued in the future? Now the progress of artificial intelligence technology with big data as the core, relying on the data analysis of enterprises, industries, and the whole society, it can more accurately predict market demand, avoid overproduction, and meet the customized needs of different consumer groups. At the same time, from the supply side, it can rely on various intelligent algorithms to carry out optimal decision-making, production simulation, virtual manufacturing, optimal allocation, etc., thereby helping to improve the trial-and-error cost of market competition resources allocation. However, this does not mean that there is a practical feasibility of implementing a “new planned economy” system in the era of artificial intelligence. The main reason is that the premise of the effective operation of intelligent machines is to obtain measurable and transferable big data and perform specific tasks with clear goals, that is, to obtain, imitate and learn and effectively process measurable “hard data” such as explicit knowledge and human order. However, it is impossible to obtain, imitate, learn and effectively process those “soft data” with immeasurable characteristics such as tacit knowledge and spontaneous order, and it is also impossible for intelligent machines to obtain and simulate those basic data based on human inner perception. More importantly, trying to use big data and artificial intelligence to establish a new planned economic system is contrary to the basis for the rapid development of artificial intelligence, because big data comes from the market, and if the planned system eliminates the market, then the market-oriented data will disappear, and the basis for planning will be gone.¹

3. Further Deepening Reform in an All-Round Way to Promote the Innovation of New Production Relations

To speed up the development of NQPF and shape new types of production relations, the most important measures to be taken are to make preparations to meet the wave of the fourth industrial revolution, to meet its inherent requirements, to further deepen the reform of the real economic system in an all-round way, and to adjust inappropriate economic policies in a timely manner. There are many aspects of this content in this area, and I will choose a few brief points for space alone.

First, it is necessary to change all capital systems and policies that are not conducive to shaping new types of production relations. First of all, on the basis of establishing the theory of value of knowledge labor, we should carry out bold innovation and reform of the existing property rights system. For example, in science

¹ Economist Interview of Xu Chenggang: Why can't Artificial Intelligence Completely Replace People? Download in: https://www.thepaper.cn/newsDetail_forward_2922175

and technology enterprises, it is necessary to change the basic pattern in which material capital occupies the dominant power, so that the main backbone scientific and technological personnel can control the majority or most of the shares of the enterprise, so that they have the corresponding decision-making power and distribution power. It is also necessary to reform the equity system of the existing technology-dependent enterprises, so as to transfer an appropriate proportion of enterprise shares to attract outstanding scientific and technological talents from all over the world. Second, the residual claim of capital should not only recognize the investment of physical capital, but also the degree of contribution of human capital, knowledge capital and technical capital, so that they have a certain residual claim. And the residual claim right should be allowed to be evaluated at a market-oriented value and entered into the enterprise shares in an appropriate manner. Thirdly, according to the law of capital operation, it is necessary to not only allow fixed capital to extract depreciation for reproduction compensation, but also allow the valuation of human capital and the extraction of appropriate “depreciation” expenses for further study, education and training of the latter.

Second, it is necessary to change all system prejudices and policies in industries that are not conducive to shaping new types of production relations. China's economy has various systems and policies that discriminate against the service industry in a long time, and is biased towards the so-called “material product” manufacturing industry, which is not friendly enough to the service industry in terms of ideology, statistical system, output value investment preferences, or specific tax and fee policies, land policies, price controls, etc. In addition, in terms of employment policy, the manufacturing industry is often regarded as a “reservoir” of employment rather than the service industry. This is appropriate in the era of industrialization, where the level of development is low and labor-intensive manufacturing dominates. However, with the development of automation and intelligence, industry becomes the most important sector to improve the efficiency and effectiveness of the national economy, and cannot bear the heavy responsibility of the “reservoir” of employment, which can only be handed over to the service sector. The policy and practice of despising the service industry is not in line with the law of value creation by knowledge labor under the fourth industrial revolution and the development trend of NQPF, and also has a strong inhibitory effect on the development of China's knowledge-intensive service industry. In the future, the potential for the development of NQPF mainly lies in the modern service industry, which is the carrier of the knowledge economy. Breaking down the prejudices and policies of the industry system that are not conducive to shaping the new type of production relations does not require the implementation of special policy preferences and measures for the modern service industry, but requires the implementation of equal policies, that is, the implementation of economic policies that treat the manufacturing industry equally, including the equality of entering (exiting)

industries, the equality of taxation, finance, subsidies, investment, innovation, etc., and the right to judge the rise and fall, advantages and disadvantages, and survival of enterprises in different industries is left to the market to decide.

Third, it is necessary to change all employment and distribution policies that are not conducive to shaping the new type of production relations. In the era of artificial intelligence, one of the most important changes is that traditional labor departments, labor positions, and labor methods are constantly being replaced by intelligent machines, resulting in structural changes in the labor market: A small number of the most senior knowledge labours become the creators of artificial intelligence technology and intelligent machines, and they are naturally in a high position in the distribution. A part of the middle- and high-skilled labor force becomes the educator, trainer and leader of intelligent machines, mainly engaged in design, programming and other work, as well as the coordination and control of intelligent machines such as Internet software, and they naturally become the middle-income group of society. The relationship of most of the low- and middle-skilled labor force and machines becomes “man in a subordinate position, and machine in a dominant position”. With the continuous upgrading of intelligent means of production, the higher the level of production automation and uninterrupted production, the less low-skilled labor force is needed to cooperate with and assist intelligent means of production. Such easily replaceable mechanical, repetitive and low-skilled occupations are generally disadvantaged and low-income people in society. In the future, our employment and distribution policies should be based on this structural differentiation trend. On the one hand, it is necessary to consider how to reduce inequality through taxation, social security and other means, and train, assist and help low-skilled labor in the era of intelligent machines. On the other hand, it is necessary to resolutely eliminate the bad employment policy orientation that despises the service industry, vigorously develop non-manufacturing jobs and skills training, encourage those labours who are replaced by intelligent machines to turn to the expanding employment in the service industry, innovate service methods, and increase new forms of service industry.

Fourth, it is necessary to change all market policies that are not conducive to shaping new types of production relations. Intelligent machines have an infinite production capacity. In the future, if all kinds of subversive high-tech products can be manufactured, sold, and embedded in the industrial chain, the key lies in cultivating a large enough market demand that can absorb these production capacities, otherwise it is easy to periodically break out the crisis of overproduction. In this sense, an important purpose of building a unified national market is to take advantage of China's super-large-scale market capacity to support or stimulate the growth of NQPF from the demand side. The future market is the most valuable strategic resource, and how big the market space is, how far the NQPF can go. At present, there are many obstacles restricting the construction of a unified national market, including institutional

mechanisms, supply-side blockages, and long-term shortages of domestic demand. In particular, the factors of domestic demand must be promoted through policies and measures to raise the income level of residents. Focusing on workers, we will improve the income, living, consumption and welfare levels of people, and strengthen the legal and institutional protection of workers. As productivity rises, so does the cost of wages and benefits. However, on the one hand, it will increase the total social demand, expand the total scale of the domestic market, and digest the huge production capacity. On the other hand, it can also take advantage of the opportunity to eliminate inefficient industries and promote industrial transformation and upgrading.

Fifth, it is necessary to change all educational, scientific, and technological systems and policies that are not conducive to shaping new types of production relations. In the fourth industrial revolution, international competition increasingly depends on a very small number of key high-precision technologies and industrial levels, such as artificial intelligence. The R&D and manufacturing of software algorithms, as well as the R&D and manufacturing of hardware computing power, especially high-precision chips, require the world's top talents at the peak of science and technology. This brings tremendous impacts and challenges to China's past talent education and training system and policies, as well as science and technology systems and policies. At present, there is a serious shortage of talent in many of China's top technical fields. In the long run, this problem is actually related to China's education system and policies. The overall orientation of China's education policy is to focus on fairness, and to cultivate "average" talents with a solid foundation and small level variance, rather than the kind of talents with large level variance and outstanding personality. Regardless of talent selection, curriculum setting, educational methods, and educational environment, they all have the remarkable characteristics of cultivating average talents, but lack the environment for the growth of top talents. In terms of the policy of using talents, there are many rules and regulations, and the atmosphere of tolerance and failure is insufficient.

In short, the development of NQPF and the shaping of a new type of production relations need to be adjusted and reformed in an all-round way according to the development process and level of intelligent machines in the future. There are many aspects in this regard, such as the increasing dependence of intelligent robots on data, data governance and privacy protection have become important policy issues. Governments need to enact laws and regulations to ensure the safe and reasonable use of data, while protecting individual privacy and promoting the open sharing of data. The development of intelligent technology may exacerbate market concentration and lead to monopoly problems, and economic policy needs to consider how to maintain fair competition in the market, prevent the abuse of market power, and promote innovation through competition policy. There is a need to consider how to formulate policies in the context of globalization to promote international cooperation and exchange of AI technologies, while protecting domestic industries and markets.

Governments need to consider how AI technology can be used to improve public services, enhance social welfare, and ensure that technological advancements benefit all members of society.

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