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A Study of the Political Economy of New Quality Productivity for High Quality Economic Development

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Abstract: The deep adjustment of the global economic pattern and the transformation and upgrading of the domestic economy are intertwined and superimposed, and the traditional factor-driven mode is gradually declining, so that the cultivation of new quality productive forces has become an urgent need for overcoming growth bottlenecks and realizing the high-quality development of the economy. From the perspective of political economy, new productivity is not only driven by technological breakthroughs but also evolves in tandem with the adaptive adjustment of production relations, and its development is subject to the complex interaction between the institutional environment, market mechanism and international division of labor system. Current research focuses on the linear relationship between technological innovation and economic growth, but ignores the enabling effect of the change of production relations on the new quality of productivity. This paper attempts to break through the traditional analytical framework, from the dynamic adaptability of productivity and production relations to explore the evolution of new productivity and its multi-dimensional impact on the high-quality development of the economy, in order to provide theoretical support for the construction of a new pattern of development and practical paths.

Keywords: new quality productivity; high quality economic development; political economy

1. Introduction

The new quality of productivity, linked by the data element, is transforming production processes and economic outputs through disruptive technologies such as artificial intelligence and clean energy, and is breaking the law of diminishing marginal returns of traditional economics. This change is not only reflected in the leap in production efficiency, but also in the fundamental shift in the logic of value creation: from reliance on resource consumption to knowledge spillover-driven, and from scale expansion to structural optimization-led. The theory of political economy reveals that the leap of productivity is inevitably accompanied by the adjustment of production relations, and the socialist market economic system with Chinese characteristics provides a unique institutional soil for the development of new quality productivity. Although existing research recognizes the importance of technological innovation, it lacks in-depth exploration of the synergistic evolution of institutional supply, benefit distribution mechanism and new productivity, and fails to fully explain the boundaries of their roles under the constraints of regional imbalance, technological monopoly and other realities. This paper attempts to construct a three-dimensional analytical framework of "technology-institution-market" to reveal the deep mechanism of new productivity to break the resource mismatch and activate the

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endogenous growth momentum, so as to provide a more comprehensive theoretical paradigm for high-quality development.

2. Theoretical Foundations of New Quality Productivity and High-Quality Economic Development

2.1. The Political Economy Connotation of New Quality Productivity

The political economy of new quality productivity needs to break through the material and technological scope of traditional productivity theory and emphasize the synergistic evolution of the reorganization of production factors and institutional change. In the context of the digital era, the capitalization of data factors has reconfigured the path of value creation, artificial intelligence has replaced traditional labor tools to give rise to a new model of human-computer collaboration, and green technological innovation has redefined the boundaries of interaction between the means of production and natural resources. This productivity leap is not only reflected in the increase of total factor productivity, but also reflects the adaptive adjustment of production relations at the level of property rights system and distribution mechanism. When the digital platform breaks the time and space limit to reshape the production organization, the rules for protecting the rights and interests of workers need to respond to the changes in contractual relations brought about by the zero-worker economy; when the clean energy technology reduces the negative externalities of the environment, the institutional design of the carbon trading market becomes the key to balancing the ecological value and economic efficiency. The special feature of China's socialist market economy system is that it maintains the guiding role of state-owned capital in strategic areas while stimulating market vitality through mixed ownership reform, and this institutional elasticity provides a practical field for the new productive forces to overcome technological barriers and optimize the allocation of factors and optimize the allocation of factors [1]. The core proposition of political economy here is that the technological innovation of the productive forces must be embedded in the innovation of the institutional framework of the relations of production, and that the dynamic adaptation of the two can break the shackles of development, such as the mismatch of resources and monopolistic barriers.

2.2. The Intrinsic Connection between New Productive Forces and High-Quality Economic Development

The intrinsic connection between new quality productivity and high-quality economic development is rooted in the qualitative change of factor allocation efficiency and the intergenerational transformation of growth momentum. The deep penetration of data elements has reconfigured the traditional combination of factors of production, and when intelligent algorithms optimize the precision of supply chain decision-making, the response speed and resource utilization rate of the whole industrial chain have jumped, which directly drives the upgrading of the economic structure along the global value chain. The industrialized application of green technology reduces the energy consumption per unit of GDP, and at the same time, generates new business forms such as carbon trading and circular economy, so that the ecological benefits can potentially be transformed into quantifiable economic value through appropriate institutional and market mechanisms. The digital platform economy breaks down geographical boundaries and aggregates global innovation resources, and small and medium-sized enterprises (SMEs) have access to technological spillovers originally belonging to large enterprises through cloud services, which effectively alleviates the inherent contradiction of unbalanced regional development. China's unique mega-market provides application scenarios to validate new productivity and space for technology iteration. For example, the new energy automobile industry, under the resonance of policy guidance and consumer demand, has accomplished the leapfrog development from technology catching up to standard output in only ten years. The timely adaptation of institutional supply plays a key role in this

process, with the clarification of data rights rules to regulate data ownership and usage, safeguard the rights of innovators, and reduce the risk of data resource concentration, and the improvement of the flexible employment security system to guard the bottom line of social justice in the expansion of the flexible employment economy. This spiral evolution of productivity and production relations is essentially a systematic channel for channeling the energy of the technological revolution into high-quality development.

3. Mechanisms of New Productive Forces for High-Quality Economic Development

The mechanism by which new quality productivity promotes high-quality economic development stems from the closed-loop interaction between the reconfiguration of production factors, the proliferation of technology applications and institutional safeguards. The real-time flow of data elements breaks the information asymmetry barriers, and when the industrial Internet platform accurately matches the idle production capacity and market demand, the equipment utilization rate of manufacturing enterprises is increased by 15%-20%, and this efficiency improvement is directly transformed into industrial upgrading kinetic energy. The application of blockchain technology in the traceability of agricultural products directly links traditional agricultural production with the value demands of the consumer side, making the mechanism of high quality and good price force the supply side to improve quality. Positive externalities generated by green technology innovation need to be internalized by institutional design, for example, the photovoltaic power grid subsidy policy not only accelerates the process of clean energy substitution, but also promotes the incremental marginal gain effect of energy storage technology research and development. When digital twin technology empowers urban planning, virtual simulation models predict systemic risks such as traffic congestion and energy overload in advance, providing a basis for the government to make precise policy decisions. The synergistic promotion of China's household registration system reform and digital infrastructure has enabled third-and fourth-tier cities to share the technological dividend of telecommuting, and the knowledge spillover brought about by cross-regional talent mobility has activated the innovation potential of county economies. The core of this mechanism lies in the fact that the productivity changes triggered by the technological revolution have continuously forced the adjustment of production relations, while the dividends released by institutional innovation have fed back the technological iteration, forming forming a self-reinforcing cycle for quality and efficiency improvement [2].

4. Challenges to the Promotion of New Productivity for High-Quality Economic Development

New quality productivity faces multiple practical constraints in the process of promoting high-quality economic development, and the mismatch between technological breakthroughs and institutional supply constitutes the core contradiction. Cutting-edge technology research and development requires long-term capital investment and room for trial and error, but the risk-averse tendency of the traditional financial system, especially regarding long-term R&D investment, has led to financing difficulties for private science and technology enterprises in key areas such as lithography and industrial software, restricting the pace of technological research. In the process of marketization of data elements, the ambiguous definition of ownership triggers the conflict between data monopoly of platform enterprises and the protection of personal privacy, and the black-box operation of algorithms may exacerbate the distortion of market resource allocation. the gap in regional digital infrastructure makes it difficult for less developed regions to absorb the technology spillover effect from economically advanced regions, and the widening of the digital divide may exacerbate the existing pattern of regional development imbalances. The promotion of green technology faces the problem of weighing short-term costs and long-term benefits, and the high investment in carbon emission reduction and transfor-

mation of small and medium-sized enterprises (SMEs) and the lack of liquidity in the carbon trading market have formed a vicious circle. The competition for the right to formulate international technical standards has exacerbated the risk of globalization of new productivity, and the technical barriers established by developed countries in the fields of semiconductors and artificial intelligence can act as constraints on the industrial upgrading efforts of late-developing countries. The deep root of these challenges lies in the tension between the rapid evolution of productive forces and the gradual adjustment of production relations, which requires systemic solutions to bridge the time lag between innovation practices and institutional safeguards.

5. Policy Recommendations for Promoting High-Quality Economic Development by New Productivity

5.1. Strengthening Scientific and Technological Innovation to Support New Quality Productivity

Strengthening scientific and technological innovation to support new productivity needs to focus on R&D transformation and factor circulation. As far as the local government is concerned, it can set up a special fund for technological research, focusing on semiconductor materials, industrial software and other areas at the basic level of research and development support, and at the same time, the relevant personnel supporting the establishment of the patent achievements of universities and colleges mandatory transformation of the relevant system, with a clear income distribution mechanism stipulating that job inventors shall receive no less than 40% of the resulting revenue. Ningbo, Zhejiang Province, for example, in its production, learning and research cooperation mode of innovation, by the Zhenhai District Government to play a leading role in the formation of graphene industrialization alliance of the Chinese Academy of Sciences Institute of Materials, Ningbo University and other five scientific research institutions, as well as 35 manufacturing enterprises to be integrated to jointly build and share the test platform and pilot production line. Among them, the graphene heat dissipation film developed by the alliance was applied in Huawei's 5G base station, prompting an 18% reduction in equipment power consumption [3]. In terms of perfecting science and technology financial services, Chengdu Hi-Tech Zone has launched a product called "R&D Progress Loan", which allows small and medium-sized science and technology enterprises to use the expected returns from patented technologies as the basis for credit guarantee. Substitution process has plays an accelerating role. Policies such as these together build a complete support chain of support from the laboratory to the workshop, a strong impetus to the transformation of technology elements toward the direction of real productivity.

5.2. Deepening Institutional Reform to Release Development Vitality

In order to unleash the vitality of new productive forces, in the process of deepening institutional reform, efforts should be focused on breaking down the barriers to factor mobility. A unified national technology trading market system needs to be established, standardized processes for patent rights and value assessment should be implemented, and researchers should be allowed to participate in enterprise dividends by way of technology equity. For example, the Shanghai Data Exchange carries out the pilot work of the data asset registration system, and recognizes the equipment operation data of the industrial Internet platform as tradable assets, and Baosteel has listed and traded the sensor data set of the blast furnace, which has gained 230 million yuan of financing for upgrading the intelligent operation and maintenance system. The sharing mechanism of scientific research equipment also needs to be reformed. The Guangdong-Hong Kong-Macao Greater Bay Area has implemented a cross-regional tax deduction policy for large-scale instrumentation, and the spherical aberration-corrected electron microscope of Dongguan's Songshan Lake Materials Laboratory has cumulatively provided 217 services to Guangdong, Hong Kong and Macao enterprises, shortening the cycle of research and

development of new materials by about 35%. The new vocational qualification certification system has yet to be improved. The Suzhou Industrial Park has set up a professional standard for cell therapy technicians in the biomedical field, and the salaries of the first batch of certified personnel have increased by 28% compared with the industry average, thus easing the talent bottleneck in the industrialization of CAR-T therapies. Through such system restructuring, the channel for market allocation of knowledge elements has been opened up, and the innovation potential of existing resources has been activated [4].

5.3. Optimizing the Market Environment to Stimulate the Main Dynamic Energy

For stimulating new quality productivity, the key to optimizing the market environment lies in restructuring the mechanism for cultivating market players. There is a need to establish a rapid disposal channel for intellectual property infringement, and A pilot system for prior payment of administrative rulings on patent infringement disputes can be implemented in new national-level zones, allowing enterprises encountering technological misappropriation to receive 50 percent of the statutory compensation amount within 30 days, subject to a clear and streamlined administrative process. Like the Guangzhou Development District launched the "innovative products first purchase insurance", funded by the government to set up a risk compensation pool, so as to encourage procurement units to prioritize the use of small and medium-sized technology enterprises developed breakthrough technology products. For instance, the self-developed diabetes drug siglitazar sodium, produced using microchip technology, was included in the procurement catalog of the First Hospital affiliated with Sun Yat-sen University. This policy led to an increase in the enterprise's R&D investment ratio to 41%. In addition, the implementation of technical standards for dynamic upgrading system is also extremely important, such as Hefei Intelligent Speech Industrial Park joint KU Xunfei to develop intelligent customer service system industry standards, dialect recognition accuracy and other six indicators into the certification system, prompting the industry chain upstream and downstream enterprises in the technological transformation of the investment to achieve an average annual growth of 19%. Through such market environment restructuring initiatives, institutional friction faced by new technologies entering the market can be effectively reduced, thereby forming a positive feedback loop for the circulation of innovation elements.

5.4. Strengthening International Cooperation to Expand Development Space

In order to promote international collaboration and expand development space, it is important to establish an open and inclusive network of technical exchanges and industrial collaboration. International technical standardization participation should focus on the digital economy and green low-carbon fields, China's experience in participating in international standardization of 5G communication standards could serve as a model, extending this involvement to the development of industrial Internet protocols and building the synergistic capacity of the global industrial chain. A breakthrough in pioneering domestic and international technology collaboration could involve setting up a "special technology transfer zone" system. Additionally, cities along the China-Europe railway could pilot a cross-border patent mutual recognition mechanism and Xi'an International Port Area has already accomplished the joint certification of 5G base station technology in some countries in Central Asia. Regarding the innovation of data cross-border flow regulations, we could first learn from Singapore's "Verifiable Data Corridor" and pilot a medical data outbound security assessment exemption list in the Hainan Free Trade Port. In line with establishing an international industrial innovation alliance and embedding it in the technology feedback mechanism within the framework of China-ASEAN digital economy cooperation and the Guangxi Qinzhou Industrial Park would lead the way of open source the cross-border e-commerce algorithm model for the secondary development of small and medium-sized enterprises in Southeast Asia. The "revolving door" program for

international talents can activate the flow of innovation factors. Shanghai's Pudong New Area allows researchers from foreign-funded R&D centers to serve as industry mentors at local universities. To address barriers to green technology transfer, a "South-South cooperation technology bank" could be set up, and the Yunnan Clean Energy Technology Transfer Center has already exported its small hydropower intelligent dispatching system to countries in the Lancang River Basin. The breakthrough point of this type of cooperation paradigm is to transform China's market scale advantage into a rule-based synergistic capacity, and to build a mutually beneficial and win-win innovation community in a global competition with a shortened technology iteration cycle [5].

6. Conclusion

The rise of new quality productive forces marks a paradigm shift in human economic activity from an industrial civilization to a digital-ecological civilization. This process involves both disruptive innovations in technological routes and forces systemic changes in property rights systems, distribution mechanisms and governance systems. Political economy analysis shows that pure technological progress cannot be automatically transformed into high-quality development results, and only when the elements of innovation resonate with inclusive institutional design can a dynamic balance of efficiency improvement and equity improvement be realized. At present, China is at a critical juncture in the transformation of old and new kinetic energy, and needs to break through the technological blockade in "neck" areas such as chips and industrial software, as well as to be alert to the risks arising from the widening of the digital divide and the aggravation of the monopoly of platforms. Future research should pay more attention to the interface between new productivity and the goal of common prosperity, especially exploring institutional innovations in such cutting-edge areas as the rights of data elements and the sharing of green technologies for the benefit of all.

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