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Promoting High-quality Development with New Productive Forces

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Abstract

As the engine of high-quality development, new quality productive forces will lay a solid material foundation for achieving Chinese-style modernization. The development of new quality productive forces is an inherent requirement for promoting high-quality development. By shaping advanced productive forces, the ultimate goal of building a socialist modernized country in an all-round way can be achieved. In the process of realizing the second centenary goal, the development of new quality productive forces faces many problems and challenges. Facing the new journey of comprehensively building Chinese-style modernization, it is necessary to scientifically grasp the countermeasures for developing new quality productive forces: strengthening scientific and technological innovation, improving the technological level in key areas; cultivating and expanding strategic emerging industries and future industries; promoting the integrated development of the digital economy and the real economy.

Keywords

New quality productive forces; High-quality development; Chinese-style modernization.

1. Introduction

New-quality productive forces are an inherent requirement for promoting high-quality development. High-quality development embodies the new development philosophy, meets the people's ever-growing needs for a better life, follows the laws of economic development, and is an inevitable requirement for maintaining sustained and healthy economic development. It is the primary task in comprehensively building a modern socialist country. We must firmly grasp this primary task of high-quality development and develop new-quality productive forces according to local conditions. New-quality productive forces refer to productive forces with higher efficiency based on scientific and technological innovation [1]. They are the productive forces that can support China's high-quality development. On the one hand, they are reflected in the development of high-tech industries, and on the other hand, they penetrate into the transformation and upgrading of traditional industries. The emergence of new-quality productive forces is an important driving force and "core engine" for high-quality economic development, promoting China's economic transformation and upgrading.

2. New Productive Forces Provide a Strong Driving Force for Achieving High-Quality Development

New-quality productive forces have created new momentum for high-quality development. The substantial enhancement of comprehensive national strength hinges on the rapid development of productive forces, which are the most active factor driving social progress [2]. However, productive forces themselves are in constant motion. The traditional mode of economic growth, which relies on large-scale input of production factors such as labor, capital, and materials, has

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become unsustainable. New-quality productive forces, originating from technological innovation, inject inexhaustible impetus into high-quality economic development. New-quality productive forces are advanced productive forces that align with the new development concept, aiming to break away from traditional economic growth patterns, fully leverage the leading role of innovation, and place technological innovation in a strategic position. They are characterized by high technology, high efficiency, and high quality, marked by a significant increase in total factor productivity. From a technological perspective, new-quality productive forces emerge from emerging industries or the transformation of traditional industries, propelling industries towards the high end of the global value chain. New-quality productive forces are new-quality productive forces primarily carried by strategic emerging industries and future industries. Strategic emerging industries and future industries are characterized by technology-intensive, high-value, innovative, and promising features. They are specific manifestations of new-quality productive forces, strategically leading high-quality development, driving the overall upgrading of China's industries, and serving as new pillars and tracks leading China's future development, as well as new driving forces supporting economic development [3].

New-quality productive forces shape new advantages for high-quality development. New-quality productive forces not only pursue reasonable growth in speed but, more crucially, also strive for quality improvement, integrating the two into the entire process of high-quality development [4]. Based on a certain economic growth rate, greater emphasis is placed on quality improvement, which includes high-quality total factors of production, high-quality production processes, and high-quality production in all fields. In particular, high-quality total factors of production are paramount, and the most important factor is the need for highly qualified workers.

2.1. New-quality productive forces are new-quality state productive forces led by digital technology

Digital productivity embodies intelligent features, driven fundamentally by digital technology, such as big data, which can provide producers with market demand information, predict future trends, and make decisions reflecting market demands [5]. Simultaneously, digital productivity facilitates precise production, catering to the personalized preferences of various consumers. Digital productivity is characterized by its digital nature, which is its essential attribute. It takes data as the core production element, monitoring the production process and driving digital production through the collection and analysis of large-scale data. The characteristic of digital productivity also lies in the reproducibility and transferability of data, enhancing the digital collaboration capability of production. Digital productivity is versatile, composed of various digital technologies, and the development of digital technology endows it with strong versatility.

2.2. Digital productivity represents a new direction for the development of productivity

Digital technology is widely applied in the production process, enhancing workers' skills and shaping highly efficient laborers. In the past, labor productivity was improved by increasing labor intensity. However, in the era of digital technology, with the accelerated evolution of digital technology, labor productivity is mainly improved through technological innovation, the enhancement of workers' quality, and the improvement of labor methods. Digital productivity continuously enhances workers' skills through digital technology empowerment, requiring workers to possess a reasonable knowledge structure, intelligence, and creative abilities, thereby enhancing human production and creative capabilities. Therefore, in the digital era, workers who can utilize new technologies, use digital and intelligent machinery and equipment, and have the ability to rapidly iterate knowledge are digital and intelligent workers. New-quality productivity will force the improvement of workers' quality, transforming demographic

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dividends into talent advantages, shaping new talent resource advantages for high-quality development, and addressing the trend of China's demographic dividend gradually diminishing. Digital productivity upgrades labor resources and creates new production tools. The labor resources in digital productivity mainly include material infrastructure (with intelligent and digital functions) and digital technology equipment, among others. The application of digital productivity can transform and upgrade labor resources, implement the networking and intelligence of labor resources, and thus promote the development of productivity. Digital productivity expands the field of labor objects and enhances production efficiency. The development and application of digital technology have increased the types of labor objects, expanding them from natural resources to data element resources. In the labor process, digital technology incorporates digital products of the virtual world such as data and cloud space into labor objects. By transforming and upgrading traditional industries through digital technology, more new materials and new energy sources can be created.

2.3. New-quality productive forces are new-quality state productive forces supported by green technology, and they are productive forces serving green development

Green productivity, guided by the concept of green development and driven by tackling key green core technologies, promotes the transformation of economic development patterns towards greenification and achieves high-quality economic development. This new type of productivity is characterized by greenification, low-carbonization, sustainability, balance, intelligence, and harmony [6]. Firstly, green productivity is primarily driven by technological innovation, which enhances the efficiency of energy and resource utilization in the production process, reduces environmental pollution, and drives the fundamental transformation of economic development towards greenification. Secondly, the green production process conserves resources and protects the environment. In advancing green technological innovation, it is essential to reduce energy consumption and pollution emissions during the production process. This shifts the traditional production process, which relies on substantial human and financial resources and produces large amounts of waste, towards a cleaner production process that utilizes clean energy, thereby improving resource utilization efficiency. For instance, substituting renewable resources for fossil fuels and reducing greenhouse gas emissions maximize the effective use of resources. Thirdly, green productivity fosters the growth of green industries, providing industrial support for green development. Green productivity, with green industries as its carrier, promotes the transformation of traditional industries towards an environmentally-oriented development model, reducing reliance on high-energy consumption and high-pollution industries. On the other hand, it can also stimulate the development of emerging environmental protection industries, such as environmental services and environmental protection equipment manufacturing. Fourthly, increasing the supply of green products meets the people's demand for high-quality ecological products. With the enhancement of China's comprehensive national strength, people's living standards have significantly improved, and their consumption demands have become more diverse and multifaceted. The development of green productivity drives the optimization and upgrading of industrial and product structures, providing people with more high-quality green products that meet their needs. Fifthly, to develop green productivity, it is essential to balance the relationship between green mountains and golden mountains. Green productivity is powered by green technology, which is widely applied in various fields, providing technical support for the transformation from green mountains to golden mountains. The innovation and application of green technology nurtures productivity within the carrier of green industries, converting ecological value into socio-economic value, thus achieving harmony between green mountains and golden mountains. The new type of productivity pursues the coordinated development of

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ecological protection and economic development, embarking on a path of green, low-carbon, high-quality development and building a modern society where humans and nature coexist harmoniously.

3. The Main Challenges Faced in Developing New Productive Forces on the Journey of Chinese Path to Modernization

The Chinese path to modernization has taken new solid steps forward, and China's economic development has been generally stable. In 2024, the GDP growth rate was 5.0%. The scale of our economy is equivalent to that of a medium-sized economy growing in one year. While the economy is moving upward and improving, the complexity, challenges, and severity faced by China's development are exceptionally grave.

3.1. The external environment for promoting high-quality economic development is fragile

The global economic recovery remains sluggish, coupled with tightening constraints on resources and the environment. The International Monetary Fund predicts a global economic growth rate of 3.2% for 2025. Furthermore, a minority of countries are engaging in "decoupling and chain breaking", "small courtyards and high walls", and protectionism, unilateralism, and hegemonism are continuously rising, intertwined with geopolitical conflicts, increasing the uncertainty of global economic operations. The vitality of the international market is insufficient, and the competition among countries for resources and markets is intensifying. The driving force of traditional industries on the economy has significantly weakened, and the momentum of traditional productive forces has diminished. At the same time, new technologies represented by cloud computing, the Internet, big data, and artificial intelligence are rapidly developing, and related industries and technologies are continuously deepening their integration. New industries and business forms are emerging endlessly, demonstrating that the momentum of new productive forces is advancing strongly, and this higher-level productive force is precisely new-quality productive force [7].

3.2. Promoting high-quality economic development faces the challenge of insufficient technological innovation capability

Scientific and technological innovation is a crucial driving force for high-quality development. However, some prominent issues of unbalanced and inadequate development remain unresolved. The quality and efficiency of development are still low, and innovation capabilities are not strong enough. According to statistical data from the Ministry of Education in 2022, the patent conversion rate in universities was only 6.5%, which is lower than 40% at Massachusetts Institute of Technology (MIT) in the United States. Some key core technologies and equipment are subject to foreign control. The import value of chips has exceeded $300 billion for five consecutive years, and the "bottleneck" problem remains prominent in key areas. Due to short-sighted behaviors in scientific research investment and innovation management by enterprises, the level of commercial application of scientific and technological achievements in China is low, and the supporting capacity of science and technology for economic and social development is insufficient. This is the "Achilles' heel" of China, a large economic entity. Against the backdrop of technological blockades imposed by European and American countries, the introduction of high-tech products and technological talents in high-precision and advanced industries faces practical challenges.

3.3. Promoting high-quality economic development faces the challenge of accelerating the transformation of the economic development mode

China's economy is currently in a critical period of transforming its development mode, optimizing its economic structure, and switching its growth drivers. On the one hand, the

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traditional economic growth mode has promoted the rapid development of China's economy. On the other hand, it has led to high resource consumption and low utilization rates. The economic growth mode is characterized by high input, high consumption, and high emissions. In particular, the driving force of this economic growth mode to promote economic development is gradually weakening, making it difficult to support the high-quality transformation of the economic development mode.

3.4. Promoting high-quality economic development faces the challenge of imbalanced and inadequate development

China's economy has entered a stage of high-quality development characterized by transformation and upgrading. The socialist system demonstrates significant advantages, governance efficiency has been enhanced, and the market boasts vast potential. However, there are still prominent issues of uneven and inadequate development among urban and rural areas, different regions, and various groups. There are numerous shortcomings in the field of people's livelihood, the task of rural revitalization remains arduous, the gap between urban and rural regional development and income distribution remains significant, and the public faces numerous challenges in employment, education, healthcare, housing, and elderly care. As a new form of productive force led by digital technology, new-quality productive forces offer new possibilities for addressing the issues of uneven and inadequate development [8].

4. The Realization Path of Developing New Productive Forces

On the new journey of comprehensively advancing the Chinese path to modernization, we must scientifically grasp the development of new-quality productive forces and expand the Chinese path to modernization while coordinating development and security. New-quality productive forces are an important driving force for high-quality development. If we talk about high-quality development without considering new-quality productive forces, we will lack fundamental motivation [9]. If we talk about new-quality productive forces without considering high-quality development, we will lose directional guidance and may lead to imbalanced development.

4.1. Strengthen scientific and technological innovation, and enhance technological levels in key areas

Innovation is the primary driving force leading development, and technological innovation will inevitably promote a qualitative leap in social productivity. Scientific and technological innovation plays a decisive role in the entire factor system of new productive forces. In addressing the shortcomings and weaknesses of scientific and technological innovation, firstly, we should optimize science and technology investment policies, increase investment in science and technology, and enhance the technological level in key areas. In 2023, China's R&D investment intensity reached 2.23%, which, although lower than that of innovation powerhouses such as Israel (4.9%), provides a strong financial guarantee for achieving innovation-driven development. We should optimize the institutions for basic research investment and strengthen support for basic research in frontier technologies such as quantum technology and gene technology. Secondly, we should strengthen property rights protection to stimulate the innovation motivation of enterprises and scientific researchers. For leading enterprises that undertake the modern industrial chain, we should leverage entrepreneurial spirit, and the key to evaluating leading enterprises and their leaders is to focus on the overall competitiveness of the industry. Thirdly, we should adhere to innovation and transformation to promote the green transformation of the economy and society. China attaches great importance to scientific and technological innovation in the fields of artificial intelligence, genomics, nanotechnology, controlled nuclear fusion, and quantum technology. Scientific and technological innovations in these fields are gradually changing the world, and to some extent,

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may even subvert it, laying a solid technological foundation for the realization of the Chinese path to modernization and injecting continuous new momentum into the development of new productive forces. Fourthly, we should also strengthen international scientific and technological cooperation, expand the scope of cooperation partners, participate in multilateral international governance of scientific and technological innovation, introduce advanced foreign technologies and management experience, and enhance China's scientific and technological innovation capabilities.

4.2. Cultivate and expand strategic emerging industries and future industries

Developing strategic emerging industries is the core of shaping new productive forces. Strategic emerging industries and future industries represent the direction of a new round of technological revolution and industrial transformation, based on major breakthroughs in frontier technologies. With the advancement of the new round of technological revolution, they are becoming an important driving force for the future economic and social development. Firstly, we should promote the deep integration of strategic emerging industries with traditional industries. Strategic emerging industries such as new energy, new materials, the Internet, intelligent manufacturing, electronic information, big data, high-end equipment manufacturing, and biotechnology have become important indicators for measuring a country's comprehensive national strength. In recent years, strategic emerging industries have developed rapidly, from the integrated development of advanced manufacturing and modern service industries, to new energy vehicles accounting for more than 60% of global production and sales volume, ranking first in the world for nine consecutive years, to silicon wafers, batteries, and components accounting for more than 70% of global production, injecting new vitality into the green transformation of industrial structure. We should promote the upgrading of traditional industries, facilitate the industrialization of advanced technologies, accelerate the application of advanced technologies to transform and upgrade traditional industries, and form a powerful driving force for economic growth. For example, Haining City in Zhejiang Province is a major market for traditional industries in China. It has actively promoted the development of industries towards high-end, green, and intelligent directions by transforming and upgrading traditional industries with new technologies. The eight traditional advantageous industries contribute about two-thirds of the city's tax revenue. In the past two years, Haining has made efforts in both traditional and emerging industries. Due to the popularity of new Chinese-style clothing and the emergence of the "camping economy" as a new trend, it is necessary to strengthen government guidance, solve problems related to technology and financing, attract more market entities to enter the field of strategic emerging industries, and promote relevant technological breakthroughs. Secondly, we should plan ahead for future industries and accelerate the formation of new productive forces. Future industries include fields and directions such as quantum information, future networks, gene technology, deep-sea, space, and air development, hydrogen energy, and energy storage. They are new pillars leading future development, embodying the characteristics of new productive forces. Although they are still in the incubation stage, they represent the direction of industrial development. Frontier technology fields such as humanoid robots, quantum information, brain-like intelligence, and deep-sea, space, and air development have great potential, high growth, and pioneering characteristics, releasing the potential power of new productive forces. We should leverage China's institutional advantage of concentrating resources to accomplish great things and the industrial supporting advantage of the most complete industrial system; we should improve the market for future industry elements and continuously optimize the industrial layout and division of labor. According to statistics, in 2022, the added value of strategic emerging industries such as new energy vehicles and high-end equipment accounted for more than 13% of GDP, providing strategic support for the sustained and healthy development of the economy and society. In summary, strategic emerging industries and future industries are driven by major

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technological innovations, leading the development direction of industrial transformation. These emerging industries, which have a significant guiding role in economic and social development, fully leverage the driving force of digital productivity on the economy and hold an important strategic position in national economic development.

4.3. Promote the integrated development of the digital economy and the real economy

The focus of economic development lies in the real economy. The real economy is the foundation of a country's economy, the economic component that provides goods and services to meet people's living and production needs, the fundamental source of wealth creation, and an important pillar for national prosperity. Economic and social development is based on the real economy. To continuously promote industrial modernization and improve the level of manufacturing, we must take improving the quality of the supply system as the main direction, laying a solid material foundation for achieving the second centenary goal. No matter when the economy develops, the real economy is the foundation for China's economic development and winning the initiative in international economic competition.

Manufacturing is the backbone of the real economy and the core of the modern industrial system. Maintaining the proportion of manufacturing in the national economy basically stable is the material foundation for enhancing the modernization level of China's industrial and supply chains. Currently, there is still a 10-20 year gap between China's manufacturing industry and developed economies. However, with the accelerating effects of the modern information industry and digital economy, China's advanced manufacturing industry has tremendous potential and growth advantages in developing new productive forces. In recent years, the proportion of manufacturing in China has continued to decline. If this trend persists, it will damage the integrity of the national industrial system, affect the stability and competitiveness of industrial and supply chains, and shake the foundation of the development of the real economy. Therefore, it is necessary to focus on emerging and strategic industries with manufacturing as the mainstay to consolidate the foundation and pillar position of the real economy in the national economy. This involves stabilizing the quantity and scale while improving quality and efficiency, unswervingly promoting new industrialization, and facilitating the deep integration of the digital economy and the real economy. A country must have the right strategic choices. As a major country, China must develop the real economy and cannot shift from the real to the virtual.

Economic development must adhere to the integration of the real economy with the digital economy at all times. The digital economy, with data resources as its key element, modern information networks as its main carrier, and the integrated application of information and communication technologies and the digital transformation of all factors as its important driving force, utilizes artificial intelligence and digital quantum technology to enable efficient operation and production in the future.

Foster a new economic model that harmonizes fairness and efficiency more effectively. The digital economy represents a strategic choice to seize the new opportunities presented by the latest technological revolution and industrial transformation. We must grasp the chances of the new round of international competition and take the lead in shaping future development. The digital economy is a form of disruptive economy. However, it still requires the physical economy as a foundation.

Intelligent production is one of the important characteristics of new productive forces. In the digital era, digital technology is a crucial factor driving the development of productive forces. Firstly, based on the real economy, we should promote the deep integration of the digital economy and the real economy. We should fully leverage the empowering role of the digital economy, drive the process of industrial digitization and digital industrialization, and provide

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lasting impetus for China's high-quality development through the integration of digital and real economies. Secondly, we should formulate policies to support the high-quality development of the digital economy, actively promote the coordinated development of digital industrialization and industrial digitization. We should deepen the research, development, and application of big data, artificial intelligence, and other technologies, carry out the "AI plus" initiative, and build a digital industrial cluster with international competitiveness. Thirdly, we should implement the digital transformation of the manufacturing industry, accelerate the large-scale application of the industrial internet, promote the digitization of the service industry, and build smart cities and digital villages. Fourthly, we should actively promote the application of digital technologies in traditional industries, such as big data, cloud computing, and artificial intelligence, to achieve automation and intelligence in the production process. By transforming traditional industries through digital means, we can improve production efficiency and product quality, and reduce operating costs. Fifthly, we should also strengthen the cultivation and introduction of talents for intelligent manufacturing, providing strong talent support for the intelligent transformation of industries. Sixthly, we should accelerate the development of the digital economy. We should fully leverage the role of data as a key element, optimize and upgrade digital infrastructure, vigorously promote the digital transformation of industries, accelerate the digital industrialization, continuously improve the level of digitalization in public services, improve and perfect the governance system of the digital economy, strengthen the security system of the digital economy, effectively expand international cooperation in the digital economy, and grow new engines of economic development. We must leverage extensive and profound digital transformation to empower economic development, enrich people's lives, and enhance the modernization level of social governance.

5. Conclusion

The new productive forces have broken away from the traditional growth path, with technological innovation as the core driving force. Through strategic emerging industries and future industries, they provide strong momentum for achieving the Chinese path to modernization. Although China faces challenges in terms of the external environment, technological innovation capabilities, development mode transformation, and regional balance, it can effectively overcome these development difficulties by strengthening key core technology research, cultivating and expanding emerging industries, and promoting the deep integration of the digital economy and the real economy. The conclusion emphasizes the need to coordinate development and security, develop new productive forces according to local conditions, achieve a qualitative leap from factor-driven to innovation-driven development, and thus accomplish the second centenary goal of achieving green, efficient, and sustainable economic development.

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