

# *The Impacts of Informatization Strategies on China's Industrial Structure Optimization*

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**Keywords:** Informatization, industrial structure optimization, economic growth

**Abstract:** Overemphasis on the total economic growth of China has led to the imbalance of industrial structure and low-quality development. How to optimize the industrial structure becomes the primary task for the development of the Chinese economy. As information technologies develop rapidly, informatization plays a significant role in promoting the optimization of China's industrial structure. This paper systematically illustrates the development history of China's informatization strategies, and analyzes the information strategy mechanism through which the optimization of China's industrial structure is promoted, finding that the industrial structure is optimized by informatization through the improvement of resource allocation efficiency and the alteration to the human capital structure. At the end of this paper, the author gives corresponding suggestions on how to leverage informatization strategies to further optimize China's industrial structure. The study holds that marketization is a fundamental principle that the government must follow in the process of formulating strategies and policies, including information technology strategies and industrial structure optimization policies. Moreover, the government should effectively safeguard intellectual property rights and information technology innovation, and promote the rationalization and advancement of resource and factor allocation in various industries through legal systems. This study provides a new path for optimizing China's industrial structure from the perspective of informatization, which facilitates the efficient and sustainable development of Chinese economy.

## 1. Introduction

The optimization of industrial structure is a dynamic changing process during industrial restructuring, including the upgrading and improvement of the industrial structure efficiency and industrial structure quality [1]. Nowadays, the development demand of China's economy has transformed from high speed to high quality. Currently, the industrial structure requires strategic adjustment, optimization, and upgrading. The economic development model is in urgent need to transform from high-input development to high-quality development that will bring out the full potential. At present, China is undergoing a critical phase in its efforts to promote the effective development model with low input and low energy consumption. Globalization, informatization, and marketization and other characteristics of global economy that reflect the current trend are vital factors influencing the optimization of China's industrial structure [2].

According to the 18th National Congress of the Communist Party of China (CPC), the key to the development model transformation of China is to promote the strategic adjustment of the present economic structure, a primary principle that must be adhered to both presently and in the forthcoming period. Therefore, the optimization of China's industrial structure becomes an important task to develop economy. Additionally, how to strengthen informatization is essential for the transformation and upgrading of China's industrial structure. Informatization features permeability, intersectionality, and integration across all domains. Therefore, it is of practical significance to discuss the impacts of informatization on the industrial structure [3].

## **2. Development of China's Informatization Strategies**

Informatization strategies are crucial for national innovation and development. It is an informatized transformation of the economic and social production and consumption modes, representing advanced productive forces and innovative development systems. The start of China's informatization could be traced back to the beginning of 1980s. With economic globalization and social informatization deepen, promoting informatization development and building a digital country have become a global consensus.

Since the 18th CPC National Congress, China has achieved significant progresses in informatization in the new era. Informatization facilitates social development, further enhances comprehensive national strength, global competitiveness, global impact, as well as the strategic importance of China. Outline of National Informatization Development Strategy, the fundamental guidance on China's informatization development, mentions that informatization is the core driving force of national modernization and cyber development, facilitating the implementation of national strategic arrangement and the Two Centenary Goals. Meanwhile, informatization is an essential step for the great rejuvenation of the Chinese nation and realization of Chinese dream. It is estimated that by the middle of 21th century, informatization will play a more significant role in leading the development of global information industry. With the guidance of informatization strategies, the internet and telecommunication networks are widely spread in China. By 2020, China witnessed the same-level penetration rate of household fixed broadband as moderately developed countries, full coverage of 4G mobile network by urban and rural areas, and significant improvement in 5G network coverage as well as 6G networks technologies [4].

## **3. Factors Influencing Industrial Structure Optimization**

Industrial structure refers to the interrelation and share of different industries within the same economy and the economic links formed in their respective economic activities. The optimization of industrial structure refers to the equilibrium tendency of the supply and demand structure of national products. It is also a dynamic, changing process of industrial restructuring, mainly achieved through the proactive and passive adjustments of the industrial structure to ultimately satisfy the developing demands of production and consumption. Most of the factors influencing economic growth also influence the industrial structure to different extents [5].

Industrial structure optimization is influenced simultaneously by multiple factors. But the existing papers have not drawn the same conclusion regarding the influencing factors [6]. Factors influencing industrial structure optimization can be summarized in the following aspects: first, the ultimate goal of optimizing industrial structure should focus on consumption demands; second, technological innovation should be the driving force of industrial structure optimization. Innovation-driven technology boosts the efficiency of production process and modernization of manufacturing techniques and management, in which informatization plays a crucial role [7]. Third, institutional arrangement is one of the decisive factors for industrial structure optimization. In

general, industrial structure is influenced and restricted by factors in multiple aspects which are also the driving forces for the industrial structure optimization. Among these factors, informatization strategy, representing the information industry and the implementation of application of information technologies, serves as the critical factor that advances industrial structure optimization.

Changes in each industry give rise to the industrial structure upgrading. The changes in a single industry contribute to changes in the overall industrial structure [8]. In recent years, Chinese government has been advancing the industrial structure optimization and upgrading through informatization strategies [9]. As of now, the agricultural, industrial, and service sectors account for 7.1%, 38.3%, and 54.6% respectively of Gross Domestic Product (GDP) while the informatization industry, included in the service sector, contributes nearly 50% to the service sector. In addition, according to National Bureau of Statistics of China, the composition of the three sectors' structure of China's economy has been gradually optimized in the past five years.

As illustrated in Figure 1, in the structure of China's three sectors, the share of the primary sector's added value is extremely low in the total economy, the share of the secondary sector's added value is levelling off in general, and that of the tertiary sector's added value accounts for a major part in China's economy.

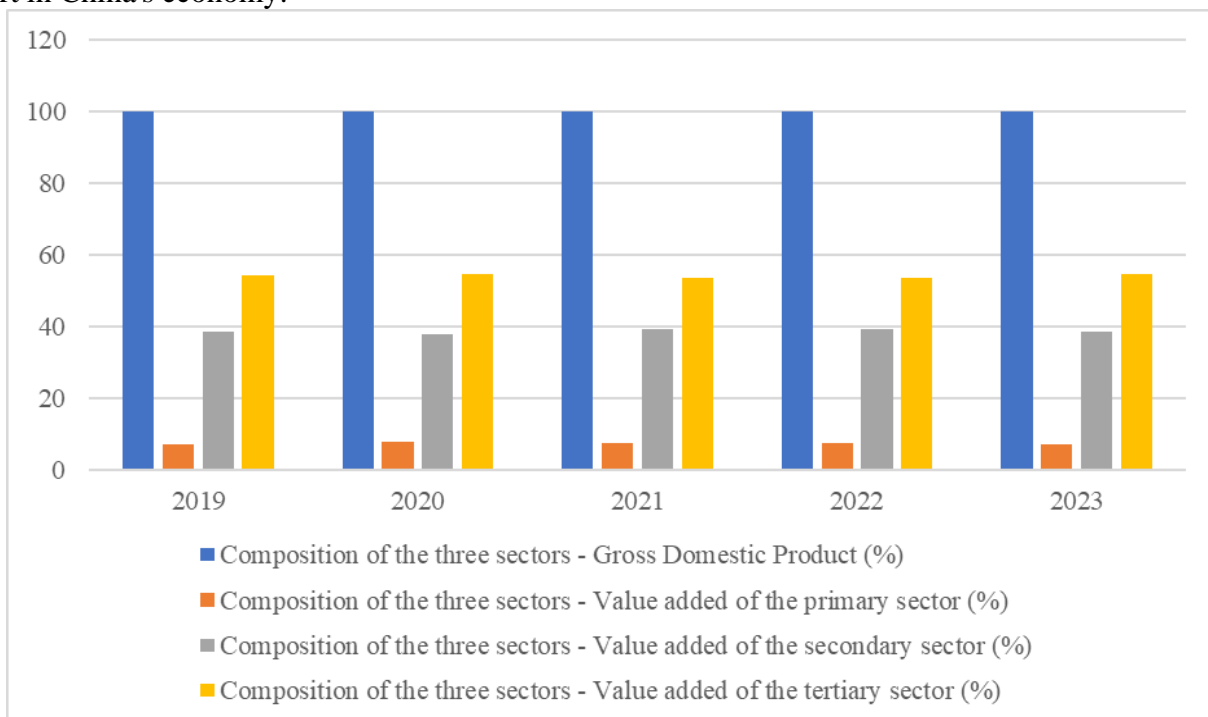


Figure 1: Shares of China's three sectors and changes in recent years (Picture credit: Original).

## 4. The Mechanism for Industrial Structure Optimization

### 4.1. Resource Allocation Efficiency

Informatization reduces the information asymmetry that occurs in the production, distribution, exchange, marketing, and other types of economic activities, improving their efficiencies and saving costs. With informatization, a new production mode is generated, dealing with resource misallocation, inefficiencies, and other issues while allocating resources in traditional markets. With the transformation of informatization, the information of factor market and the supply-and-demand relationship show significant improvement in production efficiency, the upstream and downstream information are linked, and the supply side and demand side are connected, which will reduce the

costs and financial burdens for enterprises, saving sufficient cash flow for the upgrading and optimization of industrial structure [10].

## 4.2. Human Capital Structure

With the technological advantages of informatization development, artificial intelligence, and smart factories have much lower demands for traditional employees, where the low-skilled workers in production activities are mostly replaced. Such replacements significantly affect both physical and mental labor. Informatization strategies encourage enterprises to introduce more automated production lines, intelligent equipment, and advanced technologies. During the process, the demand for relevant high-end talents increases, who replace mid and low-skilled workers. In addition to the replacement effect, informatization creates extra demand for high-end talents with technological skills. The replacement of mid and low-skilled workers and the extra demand for high-end talents give rise to a more advanced human capital structure with improved quality, contributing to industrial structure optimization. In recent years, China has continuously increased investment in education and continuously improved its human capital structure and level.

Figure 2 shows that the number of high school and higher education enrollments in China has significantly increased, which better meets the demand for high-end technical talents in the process of information technology development. The improvement of per capita education level has led to the continuous upgrading of human capital structure, further promoting the optimization of industrial structure. Based on the driving force of informatization, the demand and supply sides of human capital have formed a positive interaction, and industrial structure optimization is promoted through the optimization of human capital structure.

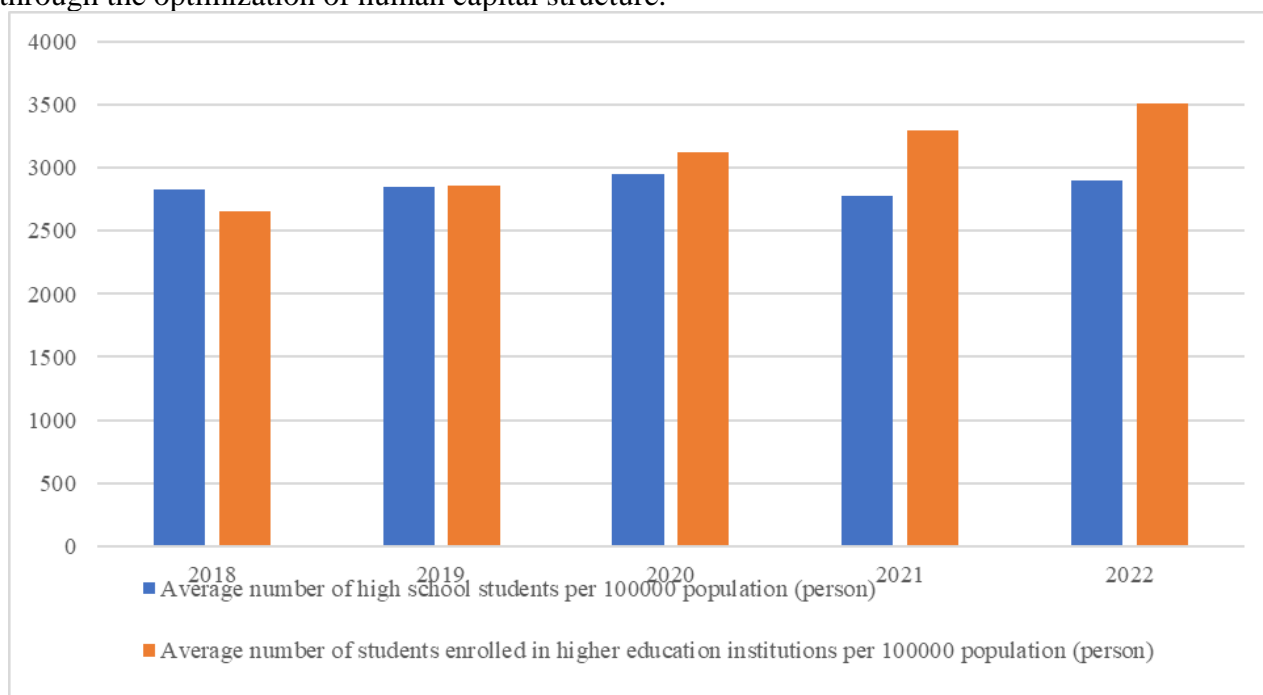


Figure 2: Enrollment in high schools and higher education institutions per 100000 persons (Picture credit: Original).

## 5. Conclusion

China's economy development is transforming from the extensive growth with high input and energy consumption to the development that will bring out the full potential with low input and

energy consumption. Promoting high-quality development and industrial structure optimization becomes the primary task for economy development. This paper analyzes the influencing mechanism of how strategies promote the optimization of China's industrial structure, and finds that the industrial structure is optimized by informatization through improving the efficiency of resource allocation and altering the human capital structure.

Based on the findings, in terms of policy making, the author suggests that on the one hand, marketization is the fundamental principle for the government when developing strategies and policies, including informatization strategies and policies on industrial structure optimization. The government should endeavor to develop advanced technologies, integrate resources across all sectors, promote the integration and development of information technologies, facilitate industrial digital development, accelerate the industrial transformation and upgrading promoted by information technologies, and advance the integration of information technologies and industrial development. During the process, the prior development of information technologies and information industry is critical. Hence, the implementation of informatization strategies will restructure industries, justify and upgrade the allocation of resources and factors across all industries. The government should step up financial support, providing stable source of funding for the technological innovation and industrial development of informatization. On the other hand, issues of informatization should be sorted through, and relevant laws and regulation should be enacted promptly. The government should protect intellectual properties and information technology innovations, laying the foundation for informatization strategies to promote industrial structure transformation at the institutional level.

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