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Empowerment Effect of Digital Economy on Common Prosperity

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Abstract. With the advent of the digital age, the digital economy has gradually become an important engine for meeting the people's growing needs for a better life, and its mutual complementarity with common prosperity has become an important guarantee for the high-quality development of the economy and society. Therefore, this paper focuses on the empowerment of the digital economy on the realization of common prosperity under its empowerment. The study finds that China's digital economy and common prosperity show an overall positive trend but with regional differentiation. It clarifies the development paths in the eastern, central and western regions, as well as the existing problems in coordination and the dimensions of assistance. It is pointed out that in the future, efforts should be made to promote the prosperity of the digital economy, optimize the industrial structure and market, and enhance innovation capabilities, so as to promote common prosperity.

Keywords: Digital Economy, Common Prosperity, Empowerment Effect

1. Introduction

Currently, China is in a phase where digital transformation and the advancement of common prosperity coincide. Driven by the wave of digitalization, the digital economy is becoming a new engine for the evolution of the global economy, bringing unprecedented changes and opportunities to society [1]. Despite China’s achievements, its middle-income group is less than one-third of the population, far from the “olive-shaped” income structure goal. Issues like slowed urban-rural mobility and unequal opportunities have become prominent, compressing channels for low-income groups to advance [2]. As a new type of economic activity that breaks through time and space constraints and promotes the flow of data factors, the digital economy provides technical support for the high-quality and sustainable development of cities [3]. The development of the digital economy has advantages such as optimizing the industrial structure, enhancing economic vitality, alleviating the man-land contradiction, and reducing resource consumption [4]. The characteristics of the digital economy, such as sharing, balance, and flatness, are highly consistent with the development goal of common prosperity [5]. In particular, the development of digital finance and industrial intelligence can better improve workers’ skills and per capita output, realize low-cost, high-quality, and equalized public services, thereby contributing to narrowing the income gap [6,7]. The importance of exploring the driving mechanisms for common prosperity has become increasingly prominent, as there is a strong congruence between the digital economy and this goal. With its high permeability

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and strong sharing characteristics, digitalization is a powerful force for achieving common prosperity. As its underlying architecture, digital infrastructure is the main carrier for this transformation and a key to realizing prosperity.

This paper focuses on three questions: the current development status of the digital economy and common prosperity across China's provinces, the empowerment of digital economy on common prosperity, and its future prospects. Through literature and theoretical analysis, it aims to provide a theoretical reference to help the digital economy enhance the level of common prosperity.

2. The status of digital economy and common prosperity in various provinces of China

2.1. Overall development status of China's digital economy

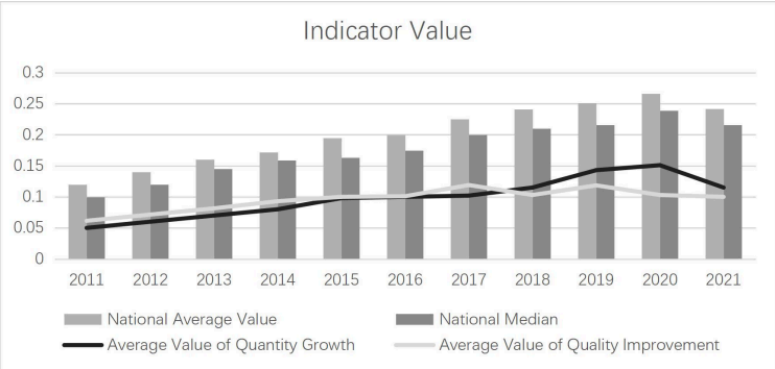

Figure 1. The trend of the high - quality development level of China's digital economy

Source: Wan, Yang & Peng [8]

As can be seen from Figure 1, the high-quality development level of China's digital economy has shown a steady upward trend on the whole from 2011 to 2021. All data indicates that over the past decade, the high-quality development of China's digital economy has made continuous progress in both scale and quality dimensions, with strong development momentum. This trend can be attributed to several factors, including the robust growth of the digital economy, sustained policy support, and the unleashing of market vitality.

The national average has been higher than the national median in most years, reflecting the imbalance in the development of the digital economy among regions, industries, or market entities, while the median reflects the status of most entities. The fact that both the average and median have risen significantly between 2011 and 2021 suggests that the "long tail" of the digital economy has become more pronounced during this period. This implies an improvement in the overall balance and inclusivity of its development.

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2.2. The differences in digital economy development among various provinces

Table 1. Gini coefficients of digital economy development levels among regions at urban levels in China

Year	Inter-regional Gini Coefficient					
	Overall	Eastern-Central	Eastern-Western	Eastern-Northeastern	Central-Western	Central-Northeastern
2011	0.136	0.112	0.133	0.145	0.137	0.176
2012	0.124	0.106	0.133	0.098	0.127	0.123
2013	0.120	0.100	0.132	0.119	0.123	0.124
2014	0.100	0.083	0.112	0.077	0.111	0.087
2015	0.087	0.065	0.097	0.072	0.092	0.068
2016	0.085	0.063	0.087	0.066	0.100	0.062
2017	0.082	0.077	0.083	0.074	0.090	0.079
2018	0.102	0.089	0.109	0.080	0.115	0.093
2019	0.093	0.078	0.088	0.079	0.100	0.091
2020	0.139	0.146	0.135	0.108	0.110	0.152
Mean	0.106	0.097	0.111	0.092	0.114	0.108

Source: Kou & Pei [9]

Table 1 presents the Gini coefficients of the digital economy development level at the urban level in China, both overall and across regions. The overall Gini coefficient of urban digital economy in China ranges from 0.082 to 0.139, with an average value of 0.106, indicating significant spatial disparities in the urban digital economy across China. The overall Gini coefficient shows a trend of first decreasing and then increasing, reflecting that the overall gap in digital economy development narrowed in the early stage but expanded somewhat in the later stage.

The disparity between the eastern and central regions, between the central and northeastern regions, between the eastern and western regions all narrowed in the early stage but widened subsequently, and the latter was relatively large. In contrast, the gap between the eastern and the northeast region was relatively large in the early stage and gradually narrowed in the later stage, with an average difference lower than the overall average. The gap between the central region and the western region has fluctuated over time, with a high average value. As for the western region and the northeast region, the overall situation has improved, but disparities still persist.

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2.3. The differences in common prosperity among various provinces

Table 2. Inter-regional Gini coefficients of common prosperity levels at the urban level in China

Year	Inter-regional Gini Coefficient					
	Overall	Eastern-Central	Eastern-Western	Eastern-Northeastern	Central-Western	Central-Northeastern
2011	0.059	0.056	0.055	0.067	0.055	0.068
2012	0.060	0.056	0.055	0.067	0.056	0.072
2013	0.056	0.044	0.051	0.064	0.051	0.040
2014	0.056	0.044	0.051	0.064	0.051	0.040
2015	0.058	0.032	0.058	0.041	0.040	0.041
2016	0.052	0.030	0.041	0.048	0.045	0.045
2017	0.052	0.029	0.045	0.048	0.045	0.049
2018	0.056	0.043	0.056	0.068	0.054	0.064
2019	0.051	0.047	0.058	0.073	0.051	0.076
2020	0.061	0.057	0.062	0.076	0.067	0.089
Mean	0.056	0.044	0.053	0.062	0.051	0.058

Source: Kou & Pei [9]

Table 2 illustrates the urban-level regional disparities in common prosperity development from 2011 to 2020. The overall Gini coefficient for this period exhibits an inverted U-shaped trend, initially declining before rising. The disparity in common prosperity between the eastern and the western region, between the eastern and central regions , the central-western disparity and the western-northeastern disparity all narrowed significantly in early period but subsequently widened, and the latter ultimately became one of the most pronounced regional disparities. As for the eastern region versus the northeastern region, the gap narrowed substantially in the early stage and rebounded slightly in the later stage, with an overall reduction in the disparity. In the comparison between the central region and the northeastern region, the gap declined in the early stage but fluctuated around 0.075 for the most part.

The development rhythm and synergy of the digital economy and common prosperity in different regions fluctuate, requiring continuous attention and the promotion of balanced development through policy measures and other means.

3. The empowerment of the digital economy on common prosperity

Common prosperity encompasses two dimensions: prosperity and commonality. The connotation of common prosperity first lies in prosperity, which means "expanding the cake," emphasizing efficiency, and forming the material foundation of society. Secondly, it lies in commonality, emphasizing fairness, which means "distributing the cake properly" [10]. Therefore, it is essential to understand the empowerment of the digital economy on common prosperity.

3.1. Improving income distribution

The digital economy is pivotal in regulating reward distribution and optimizing the income structure, essential for promoting common prosperity. It shifts the focus away from the traditional

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reliance on land and capital, emphasizing the knowledge economy. This shift, reducing the prominence of capital and land in production, fosters fairness in primary remuneration distribution.

Moreover, the digital economy ensures redistribution fairness. Enhanced digital infrastructure extends resources to remote, underdeveloped regions, previously inaccessible. For instance, improved digital access enables remote residents to receive timely information and utilize cloud-based educational resources, enhancing public services.

Significantly, the digital economy also bolsters the tertiary distribution, involving voluntary wealth transfer to vulnerable groups through charity and voluntary services, supplementing primary and secondary distributions. Historically, China's tertiary distribution suffered from "insufficiency" [11] due to tax system imperfections and weak charity credibility. However, the digital economy has revolutionized this sector. Technology-driven online welfare platforms have elevated the popularity, participation, and transparency of public welfare projects. Enhanced the public's ability to supervise the flow of charitable funds.

3.2. Innovation in digital technology

The digital economy drives technological innovation, positively impacting common prosperity. While China eradicated absolute poverty in 2021, relative poverty persists due to regional imbalances, creating disparities in wealth, opportunities, and capabilities that hinder this goal [12]. Traditional approaches to coordinated regional development are no longer feasible, necessitating new mechanisms to unlock potential for broader, more equitable growth.

Digital innovation—centered on big data, AI, cloud computing, and blockchain—differs from traditional models by leveraging data, a production factor with non-rivalry, replicability, and infinite scalability [12]. This enables cost-effective expansion and sharing, making it a critical pathway for future high-quality development across regions.

3.3. Meeting people's spiritual needs

At the spiritual level, the digital economy fosters a greater sense of self-worth by enriching experiences and broadening emotional connections, supported by advanced digital infrastructure. This infrastructure also helps reduce regional income gaps, as information sharing more strongly boosts economic growth in underdeveloped areas, leading to convergent regional development [13]. It acts as an "investment" to drive economic growth through demand-pull and "multiplier" effects, facilitating further economic upgrading [14]. The lower cost of information dissemination enables broader participation in digital life, and the integration of digital tools with local economies narrows the development gap between regions. Improved internet penetration and smart terminal access promote digital inclusion, allowing marginalized groups to engage socially and reducing isolation caused by "digital exclusion" [14].

3.4. Promoting economic development

The digital economy's inherent characteristics—collaboration, openness, sharing, and connectivity—foster cross-domain information exchange and integrated innovation, optimizing production and upgrading value chains to drive national income growth [15]. Its high-tech nature and knowledge diffusion capabilities create a balanced growth mechanism, promoting common prosperity for individuals and organizations [15].

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Additionally, the digital economy empowers industrial upgrading, enhancing the added value of traditional industries and enabling their transition to secondary and tertiary sectors. This generates new business forms and employment opportunities, particularly for the unemployed, while improving labor productivity and narrowing the urban-rural gap through resource reallocation [14].

4. Future development prospects

Based on the analysis, the digital economy holds broad prospects for development and will be a key driver of economic growth and common prosperity. Future efforts should focus on three areas:

First, promote the coordinated growth of the digital economy and enhance regional talent retention. This involves strengthening digital infrastructure like 5G and fiber-optic networks to ensure universal access and formulating supportive policies to increase investment and cultivate digital talent, laying a solid foundation for innovation.

Second, develop regional strategies tailored to local economic and industrial conditions. By establishing demonstration zones and a “point-to-area” model, the development of underdeveloped regions can be accelerated, the digital divide bridged, and urban-rural integration promoted through the sharing of high-quality digital resources.

Third, boost digital innovation and optimize the market environment. The government should use subsidies and tax incentives to encourage entrepreneurship, establish a coordinated regulatory framework to protect intellectual property and prevent monopolies, and leverage big data to provide rich resources for entrepreneurs, thereby stimulating economic vitality.

5. Conclusion

This research suggests that the empowerment of China's digital economy on common prosperity shows a trend of "overall positive development with regional differentiation." While the digital economy has advanced common prosperity, issues like persistent regional disparities and uneven benefits for vulnerable groups remain, stemming from unbalanced regional development and a faster "quantitative" expansion than "qualitative" fairness. From the perspective of empowerment mechanism, the digital economy fosters common prosperity through four key dimensions: regulating distribution, driving innovation, satisfying spiritual needs, and facilitating industrial upgrading and employment.

Consequently, future efforts should focus on: 1) boosting the digital economy and improving talent retention; 2) rationally structuring digital industries and cultivating infrastructure markets according to regional characteristics; and 3) enhancing core innovation capabilities and optimizing the market environment. Regional comparisons suggest that policy makers should pay more attention on balancing the digital economy's regional layout, promoting fairer resource and income distribution, and accelerating the path to common prosperity.

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