

Research on the Mechanism and Path of Digital Technology Enabling High-quality Development of Zhanjiang County Economy

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Abstract: Digital technology is emerging as a significant driver for the high-quality development of Zhanjiang county's economy. This study begins by analyzing the present situation of the county's economic development, focusing on the gross domestic product(GDP) of each individual county within Zhanjiang. The findings demonstrate that while the GDP of Zhanjiang's counties is growing to varying degrees, there exists a noticeable disparity in development among them. Subsequently, this paper explores how digital technology facilitates the high-quality development of the county's economy. It illuminates this mechanism through several perspectives: the integration of digital elements into the county's economy, the promotion of industrial structure upgrading facilitated by digital technology, and the enhancement of human capital value through digital technology that propels the development of the county's economy. Moreover, this research proposes specific strategies for enabling the high-quality development of Zhanjiang county's economy through digital technology. These strategies encompass strengthening the construction of digital infrastructure, optimizing industry upgrades, promoting the integration of digital technology with agriculture, and improving the recruitment and training of digital talent. By presenting these pathways, this study aims to provide novel ideas and directions for the advancement of Zhanjiang county's economy towards high-quality development.

Keywords: Digital Technology; County Economy; High-Quality Development;

Digitalization

1. Introduction

With the rapid advancement of information technology, the digital economy has emerged as a dominant force. It operates on the basis of data, employing scientific and technological innovation as its main driving force, and leveraging modern information networks as its primary infrastructure. The seamless integration of information and communication technology further enhances its potential, fostering a shift towards intelligent, information-driven, and digitized economic development. Additionally, this transformation facilitates the smooth and efficient flow of resources and factors, promoting economic and social activities in an organized manner. The emergence of digital technology has not only revitalized traditional industries but also fostered the sustainable growth of the global economy ^[1]. As a vital player in the economic landscape, counties now hold a strategic position in this new era. The pursuit of high-quality economic development at the county level carries significant implications for achieving rural revitalization, bridging the urban-rural divide, and propelling overall economic and social progress. However, due to certain physical location constraints in most counties and towns, the implementation of strategic measures such as urban-rural integration, industrial structure optimization and Rural Revitalization has resulted in low governance efficiency and insignificant results. The new infrastructure and information technology brought by digital technology are accelerating to sink. Through the Internet and other information platforms, new information technology is used to build real-time

connections between cities, counties, and towns, weaken physical location constraints, and accelerate the economic cycle within the county to a certain extent. Under the new development paradigm, it is crucial to acknowledge the pivotal role digital technology plays in driving innovation and fostering high-quality development in county economies and social progress. Such advancement not only serves as a catalyst for the high-quality growth of county economies, but also propels overall societal progress.

Currently, research on the role of digital technology in advancing county economic development has yielded significant progress. This includes noteworthy accomplishments in enhancing the quality of agricultural development, driving rural revitalization through digital technology, optimizing industries, and more. Digital technology has brought about improvements in information integrity and scientific decision-making, leading to enhanced efficiency in traditional production factors. Consequently, it has facilitated the transformation of agricultural production and management approaches from extensive to digital, intelligent, intensive, and ecological models [2]. The utilization of digital technology serves as a driving force for the modernization of agriculture and rural areas, facilitating the optimal allocation of labor, land, capital, technology, data, and other essential resources. This infusion of digital technology imparts a fresh impetus to the progress of rural development [3]. Promoting high-quality development of the county economy necessitates the upgrading of the industrial structure. Digital technology plays a pivotal role in the three major sectors of the national economy, facilitating seamless integration and efficient management of production processes. This integration significantly enhances the total factor productivity of the entire national economy, streamlines resource allocation, and propels the transformation and upgrading of industries across China [4]. In the pursuit of promoting industrial transformation and upgrading, digital technology will play a crucial role in optimizing the allocation of human capital within the tertiary industry. This entails the transfer of workforce from the primary industry to the secondary industry, and subsequently from the secondary industry to the tertiary industry [5].

In recent years, the counties under the jurisdiction of Zhanjiang City have made certain development achievements. However, faced with the intensification of global economic competition, the increase of resource and environmental constraints, and the contradiction between market demand and production capacity structure, Zhanjiang county economic development is facing enormous pressure and challenges. The existing traditional industrial model falls short in meeting the demands of development, necessitating immediate economic transformation and upgrading. In light of this context, this research focuses on analyzing the current status and distinctive features of Zhanjiang county economy. It delves into the impact of digital technology on the county economy, with the primary objective of exploring the potential of digital technology in fostering high-quality development. By doing so, this study aims to offer strategic guidance and recommendations for the transformation and upgrading of Zhanjiang county economy, thus holding tremendous significance in enhancing its overall quality of development.

2. Analysis on the Current Situation of Zhanjiang County Economy

Regional GDP is an important indicator to measure the economic development of a region. GDP is a measure of the total scale of production activities of a country or region in a certain period of time. Figure 1 GDP trend of counties in Zhanjiang.

It can be seen from Figure 1 that Leizhou's regional gross domestic product (GDP) increased year by year from 2014 to 2021, and the growth rate of GDP accelerated from 2018. The regional gross domestic product (GDP) of Lianjiang also showed an overall growth trend between 2014 and 2021. Although it declined in 2019 and 2020, it rebounded in 2021, reaching 516157247 million, ranking first in the whole city. The regional gross domestic product (GDP) of Wuchuan City has also increased in general in the years provided. Although it declined in 2019 and 2020, it rebounded in 2021. The GDP of Suixi County also increased in general in the years provided. Especially from 2018 to 2021, the GDP of Suixi County grew rapidly. The GDP of Xuwen County also showed an overall growth trend in the years provided. Although its GDP

is lower than other counties and cities, its growth rate is in the leading position in the whole city. On the whole, the regional gross domestic product (GDP) of all counties in Zhanjiang is growing to varying degrees.

Among them, the GDP of Leizhou City, Lianjiang City, Suixi County and Xuwen County is growing rapidly, while the GDP of Wuchuan City is also growing steadily.

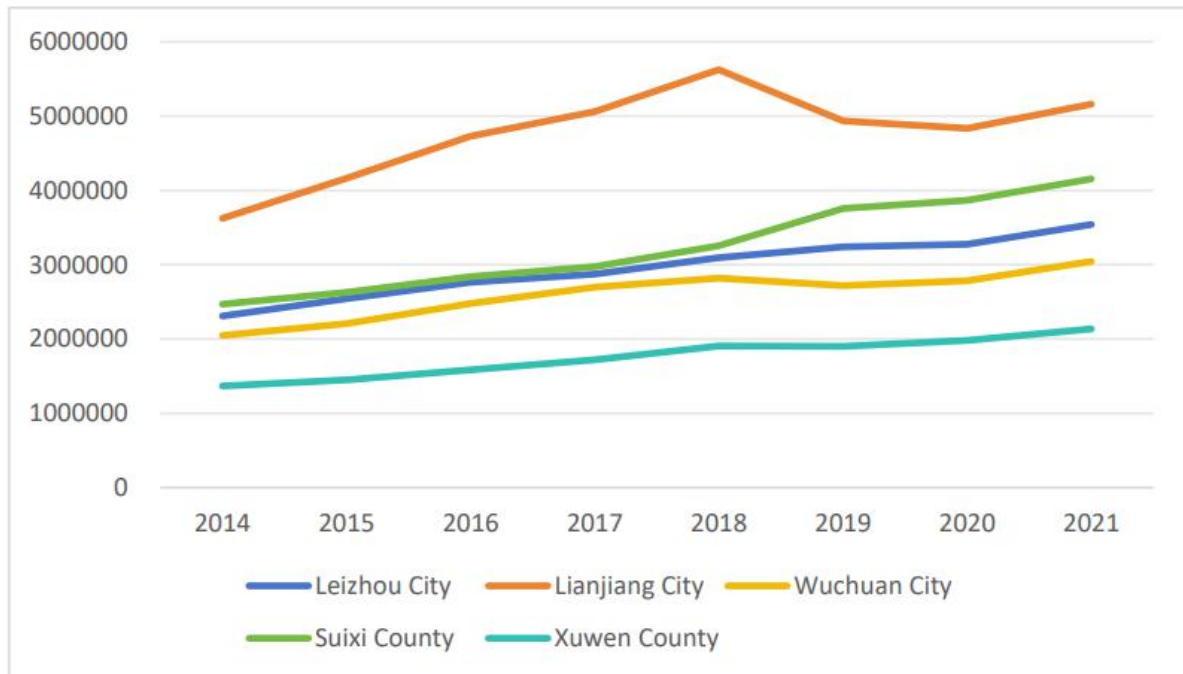


Figure 1. GDP Trend of Zhanjiang Counties

3. The Mechanism of Digital Technology Promoting the Development of County Economy

3.1 Digital Elements Promote the Development of County Economy

The cornerstone of development in the era of digital economy lies in the virtual data element. The seamless integration of cutting-edge digital technologies like big data, Internet of Things, artificial intelligence, and cloud computing with the realms of economy and society has given rise to an unprecedented abundance of data. As data collection, organization, analysis, and storage technologies continue to advance, data has emerged as a novel and indispensable production factor, serving as a fundamental strategic resource. In its capacity as a new type of production factor, data resources have become indispensable for propelling economic growth in the present era [6]. Digital elements drive the rapid operation of capital, materials, talents, technology, etc., which greatly improves the flow speed of elements, and can continue to give birth to new products and new

formats dominated by innovative knowledge, with data as the core resource and creativity as the important element. Digital elements promote the birth of digital products, which comprehensively drives the development of intelligent equipment manufacturing, digital media equipment manufacturing, and digital technology application industries, and promotes economic growth. Data elements serve as a crucial driving force for the development of the emerging economic landscape, giving rise to the establishment of internet platforms, the construction of information infrastructure, optimization of production processes, interconnections of industrial development, adoption of intelligent governance modes, and the creation of personalized value chains. By leveraging data resources as the foundation, continuous innovation in digital technology has led to the rapid introduction of new products and services, facilitating the phase-out of outdated production capacities, enhancing overall factor productivity, and significantly propelling county-level economic growth.

3.2 The Development of Digital Technology Fuels Economic Growth in Counties through Industrial Upgrading

The advent of the Internet of Things, big data, and other cutting-edge technologies has played a critical role in fostering the advancement of smart agriculture. These technologies have not only improved agricultural production conditions but also enhanced crop yields and quality. Moreover, the digitalization of industries, such as manufacturing, has facilitated their transformation into more advanced forms. Through the integration of intelligent manufacturing technologies and the optimization of production processes, strategic emerging industries like high-tech, software services, and equipment manufacturing, which primarily focus on new materials and new energy, have flourished. Consequently, the secondary industry has experienced continuous growth [7]. In addition to this, the rapid development of the digital economy has also spurred the reform of the service industry. The widespread application of digital technology in the service sector has propelled its transition and upgrade towards a high-end and digital orientation. This not only enhances the economic benefits but also improves the efficiency and quality of services provided. Moreover, digital technology drives industries towards a trajectory characterized by scientific and technological prowess, efficiency, low energy consumption, high effectiveness, and minimal pollution. Such progress subsequently facilitates the optimization of industrial structure, promotes balanced industry development, injects new vitality into economic growth, and drives the growth of county economies [8].

3.3 Digital Technology Plays a Vital Role in Advancing County-level economic Development by Enhancing the Value of Human Capital

The digital economy is characterized by innovation and knowledge-based approaches. Technological innovation serves as the driving force behind digital economy development, necessitating the presence of high-quality talent and robust research and development capabilities. As the digital economy continues to expand, the societal demand for high-quality digital human capital grows

proportionally. While the progress of digital technology results in the inevitable elimination of low-skilled, labor-intensive jobs, it concurrently generates a heightened need for skilled professionals and technical experts within the digital industry. In the larger scheme, the long-term positive effects of technological advancements offset the current issue of unemployment among low-skilled workers, leading to a significant improvement in overall employment quality across society. The digital industry, characterized by high levels of professionalism and strong innovation capabilities, responds to the enhancement of human capital by driving the transformation of talent pool quality. Consequently, digital technology finds widespread applications across all sectors of the national economy, incorporating and streamlining the production and management processes, continuously upgrading the traditional industrial structure, optimizing the social employment structure, improving the level of human capital, enhancing the total factor productivity of the national economy, and ultimately fostering county-level economic growth.

4. The Path towards Enabling High-quality Development of Zhanjiang County Economy through Digital Technology

4.1 Accelerating the Comprehensive Construction of Digital Infrastructure to Drive High-quality Development Momentum of Zhanjiang County Economy

By promoting the development of information network infrastructure, we can establish a solid foundation for digital transformation in county industries and foster the growth of digital agriculture. While the overall level of information infrastructure in Zhanjiang City is commendable, there is still a need to continue sinking efforts into constructing new infrastructure in the counties. This includes advancing the construction of logistics and optical fiber network facilities in towns and counties. To begin with, it is crucial to expedite the construction of new "cloud, network, and end" infrastructures. In rural areas with favorable conditions, exploring the establishment of related infrastructures such as 5G and the Internet of Things will create a more conducive environment for agricultural

transformation, as well as the integration and development of industries. Furthermore, the creation of a digital distribution system for county logistics should be prioritized. This entails bolstering digital construction in the field of county and township transportation, enhancing the coverage of rural express delivery services. Additionally, there should be a concerted effort to improve logistics infrastructure, construct robust rural e-commerce platforms, and encourage villagers to leverage the power of online platforms to consume and sell their agricultural, forestry, animal husbandry, and fishery products. These measures will lay a solid foundation for the establishment of a digitally empowered countryside. Lastly, in addition to providing dual-direction guidance in terms of funding and policies for rural networks, transportation, cold chain, and logistics hardware infrastructure, government departments should also leverage their market-guiding role to optimize the allocation of social resources. This includes strengthening the construction of software facilities such as county education, rural medical care, and people's livelihood security services.

4.2 Developing Digital Technology to Promote Agricultural Development in Zhanjiang County

To fully leverage the transformative power of the digital economy, including big data and the Internet of Things, it is essential to expedite the exploration and innovation of digital agricultural technology. Moreover, the application of industrial internet should be strengthened, and the adoption of smart agriculture should be popularized. By mobilizing all elements related to agricultural and rural development, we can unlock the untapped potential of this sector. To encourage local markets and agricultural enterprises to actively participate in the digital economy, it is crucial to employ incentivization measures. These measures will guide their active involvement, leading to the integrated development of the digital economy and the local agricultural industry. Ultimately, this integration will result in improved overall benefits and enhanced competitiveness for agriculture and rural areas. Furthermore, it is imperative to accelerate the optimization and

structural transformation of the agricultural industry in Zhanjiang County. This can be achieved by promoting the research and development of digital agricultural technology, while also facilitating the synergy between the digital economy and the local agricultural industry^[9]. In this process, on the one hand, all counties in Zhanjiang should enhance the digital coverage of agricultural software and hardware in agricultural production. By utilizing modern technology, the aim is to improve the level of agricultural machinery and equipment, thus enhancing the degree of automation of agricultural production and maximizing production efficiency. Additionally, the utilization of Internet big data and other advanced technologies should be embraced to establish smart agriculture, enabling precision fertilizer application, pesticide spraying, and effective natural disaster management. On the other hand, it is crucial to expedite the amalgamation of digital agricultural technology with the development of modern agricultural industrial parks. This will contribute to the optimization of rural land utilization and increased land value. The full potential of digital technology should be unleashed in diverse aspects of agricultural production, sales, and management. By doing so, the agricultural development in Zhanjiang counties will reach new heights, leading to an enhanced quality of county-level agricultural economic development.

4.3 Accelerating Industrial Structure Upgrades

The current industrial structure of Zhanjiang county's economy is dominated by traditional industries, characterized by a singular structure and low efficiency in utilizing resources. The traditional manufacturing industry and agriculture in Zhanjiang county are generally technologically outdated. Therefore, it is imperative to facilitate the digital transformation and intelligent upgrading of these traditional industries by embracing digital technology. This includes the implementation of technologies such as the Internet of Things and big data in precision agriculture, which aims to enhance crop yield and quality. Furthermore, it involves optimizing production processes and improving production efficiency through the introduction of intelligent manufacturing

technology^[10]. All counties must expedite the accessibility and sharing of agricultural and rural big data, fostering the development and support of a digital platform that caters to the local context. This platform should integrate the distinctive characteristics of each town and village's agriculture with digitization. By doing so, it can facilitate the construction of production and marketing systems in all regions, enhancing the added value of agriculture, forestry, animal husbandry, and fishery. Additionally, it should fully utilize data resources to promote accurate and intelligent decision-making in agricultural sales. The integration of digital technology has the potential to transform and upgrade traditional industries, facilitating adjustments in the industrial structure, and providing new impetus for the high-quality development of Zhanjiang county's economy.

4.4 Enhancing the Formation of a Digital Talent Team through Recruitment and Nurturing in Zhanjiang County

The development of digital economy in counties needs high-quality talents. All counties in Zhanjiang should continue improve the digital talent system, and formulate the long-term policies for digital and scientific talents to feed back the countryside mainly from the aspects of talent cultivation and introduction. In terms of introducing talents, it is necessary to introduce and retain them, build a temporary and part-time mechanism for digital technicians from institutions of higher learning, scientific research institutes and other institutions to work in rural areas, continue to carry out the activities of digital talents to the rural areas, and popularize the relevant knowledge of digital agriculture and rural areas. At the same time, it is crucial for all counties to recognize and seize the potential of short video live broadcasting and e-commerce within the agricultural sector. This includes the marketing and sales of various agricultural products like farm produce, fruits, vegetables, seafood, and more. These industries are experiencing significant growth, and it is essential to encourage local businesses to adopt a digital development strategy in order to expand their distribution channels for agricultural products. Therefore, they should promote Internet universal education to improve the digital level of local residents,

provide online and offline digital talent training courses, broaden job promotion channels, and provide more convenient social service guarantee for digital talents, and the professional talent team of digital county construction should be continuously expanded to avoid talent loss.

5. Conclusion

Enhancing the Impact of Digital Technology on County Economic Development: A Case Study of Zhanjiang County. This research paper aims to explore the influence of digital technology on the economic development of counties, specifically focusing on Zhanjiang County. The findings reveal that digital technology play a crucial role in optimizing industrial upgrading, developing human capital, and ultimately shaping the county's economic landscape. To achieve high-quality economic development, it is imperative for Zhanjiang County to prioritize the construction of digital infrastructure. By strengthening the county's digital foundation, it will be better equipped to leverage the advantages offered by digital technology. Furthermore, promoting the digital upgrading of industries will improve their competitiveness and innovation capabilities, driving sustainable economic growth.

In the future, Zhanjiang county economy needs to prioritize the development of the digital economy, accelerating digital transformation, enhancing innovation capabilities, and creating a favorable business environment. Simultaneously, Zhanjiang County should foster collaborations and exchanges with renowned domestic and international enterprises and institutions, learning from their advanced experiences to continuously improve competitiveness. By implementing these strategies and embracing the opportunities afforded by the digital economy, Zhanjiang County economy can realize its goal of achieving high-quality economic development.

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