

# Analysis of Economic Growth Effects and Influencing Factors of Guilin Economic and Technological Development Zone

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**Abstract:** In order to promote the accelerated development of Guilin's modern industry and realize the strengthening and upgrading of industries, Guilin Municipal Government approved the establishment of Guilin Economic and Technological Development Zone in 2016. Guilin Economic and Technological Development Zone has made certain achievements and laid a certain development foundation in terms of human capital level, industrial structure and financial support. However, Guilin Economic and Technological Development Zone has problems such as high ecological and environmental risks in the park, unbalanced and insufficient development of the park, and insufficient number of high-quality enterprises and high-quality talents in the park during the construction process, which are mainly caused by the low enforcement of environmental protection supervision in the park, the lack of standardization of production and management activities, and the relatively low level of government policy support. Therefore, Guilin Economic and Technological Development Zone needs to strengthen the enforcement of environmental protection supervision in the zone, implement the standardized production and management requirements in the zone, build a sustainable development path of "aggregation-transformation" through the collaborative governance between the government and the zone, and promote the human capital level of Guilin Economic and Technological Development Zone according to local conditions. High-quality development, optimize the allocation of financial, human capital and other resources, strengthen project construction, so as to promote the steady development of the park, promote the optimization and upgrading of Guilin's industrial structure, and promote the high-quality, high-level development of Guilin's economy.

**Keywords:** Industrial Structure; Human Capital Level; Guilin Economic and Technological Development Zone; Policy Support

## 1. Introduction

In recent years, the overall economic strength of Guilin has continued to improve, and the strength of urban development has increased. However, with the continuous growth of the total economy, affected by some structural problems, Guilin's GDP growth rate has been declining year by year, and economic development has entered a new normal. Under the new situation, how to promote the stable development of Guilin's economy and cultivate new high-tech growth points and new impetus for economic development is an urgent task for Guilin at this stage. In 2016, Guilin City opened the construction of Guilin Economic and Technological Development Zone (ETDZ), and constructed a new pattern of industrial "two-winged and two-wheel-driven" in Lingui District and Anfu County of Guilin City, which steadily promotes the optimization and upgrading of the industrial structure, and pushes forward the high-quality and high-level development of Guilin's economy.

At present, domestic and foreign academic research on economic development zones and economic policies is quite rich, and its research methods are mainly double difference method and synthetic control method. The research on Guilin Economic and Technological Development Zone in the existing literature focuses on the current situation of Guilin Economic and Technological Development Zone as well as the necessity of the two aspects, but domestic and foreign scholars have fewer studies related to the study of problems and countermeasures for the construction of Guilin Economic and Technological Development Zone. Guilin Economic and Technological Development Zone, as an important project for Guilin to build a new pattern of industrial "two-winged and two-wheel-driven", has an important research value. This paper will study the problems and reasons of Guilin Economic and Technological Development Zone, analyze the development status quo of Guilin Economic and Technological Development Zone, explore

the future development path of Guilin Economic and Technological Development Zone, and help research on the high-quality development of the economy of Guilin Economic and Technological Development Zone and the economic effect of the zone.

## **2. Analysis of the Current Situation of Guilin Economic and Technological Development Zone Construction**

### ***2.1. Construction Overview of Guilin Economic and Technological Development Zone***

Guilin Economic and Technological Development Zone is an autonomous region-level industrial park approved in 2016 for the purpose of building a new pattern of "two-winged and two-wheel-driven" industry in Guilin. In terms of human capital level, the quality of human capital level development in Guilin was not high in 2014, and some industries still had problems such as insufficient market demand and insolvency. The level of business income and profit was low, the ability to absorb the population for employment was poor, the wages and benefits of employees needed to be improved, and the attractiveness of talents was insufficient. Since the construction of Guilin Economic and Technological Development Zone in 2016, the per capita fixed assets reached 40,108 yuan, and the per capita fixed assets and jobs increased by 76% and 111.22% in 2016 compared with 2015, and the level of Guilin's human capital has been significantly improved. Guilin Economic and Technological Development Zone has promoted the improvement of human capital level in Guilin. In terms of industrial structure, Guilin Economic and Technological Development Zone attracts high-tech enterprises and talents in Guilin to settle in the area through high-quality policy environment, and vigorously develops high-tech industries such as general equipment manufacturing, pharmaceutical manufacturing, software information, etc. The agglomeration of high-quality industries generates the effect of economies of scale, and brings in the advanced scientific and technological level and production experience, which drives the technological upgrading of local enterprises. In terms of development path, Guilin Economic and Technological Development Zone has its own goal orientation: in 2016, Guilin Economic and Technological Development Zone takes the strategy of "Industrial Strengthening Zone" as its goal orientation, focuses on industrial science and technology, meets the needs of private science and technology enterprises, and develops high-tech products. In terms of financial support, Guilin Economic and Technological Development Zone and financial institutions mutual benefit, win-win cooperation, make full use of the good resources and advantages, reduce the cost of financing, broaden the financing channels, for the Guilin Economic and Technological Development Zone industry to provide a good business environment.

### ***2.2. Resource endowment conditions for the construction of Guilin Economic and Technological Development Zone***

Guilin Economic and Technological Development Zone has sufficient resource endowment advantages, by analyzing the resource endowment advantages, leading industries, problems and countermeasures of some industrial parks in Guangxi, we summarize the development experience and help the high-quality development of Guilin Economic and Technological Development Zone.<sup>[1]</sup>

In this paper, two industrial parks, Guilin High-tech Industrial Development Zone and Liuzhou High-tech Industrial Development Zone, are selected for horizontal comparison. The leading industries of the three industrial parks are similar, with different degrees of development, and all of them are in Guangxi, with similar policy environments, which are suitable to be used for horizontal comparison and analysis. Guilin Economic and Technological Development Zone is endowed with the advantages of rich university resources and good ecological environment, and its leading industries are equipment manufacturing, food, and biomedicine. The zone suffers from high ecological risks, insufficient development of the zone, and a low number of quality enterprises and talents in the zone. The park's countermeasures are to strengthen environmental regulation, standardize production and management activities in Guilin Economic and Technological Development Zone, and strengthen policy support. The endowment advantages of Guilin Hi-Tech Industrial Development Zone are its early start of development, strong policy support, and its leading industries are electronic information and biomedicine. The park suffers from the problems of insufficient supply chain structure improvement and not well utilizing the resources in the surrounding area. The countermeasures of the zone are industrial integration, implementation of information sharing mechanism, improvement of industry-university-research joint mechanism, and integration of various resources to realize optimal allocation of resources. The endowment advantage of Liuzhou Hi-tech Industrial Development Zone is a better industrial foundation, and its leading industries are automobile, equipment manufacturing and new materials. The park has

problems such as low degree of industrial correlation, insufficient industrial collaboration, poor combination of industry, academia and research, low efficiency of cluster cooperation, insufficient innovation capacity, and poor benefits of cluster development, etc. The countermeasure of the park is that the relevant departments should provide the necessary resources to realize the optimal allocation of resources. The countermeasures of the park are to provide corresponding policy support from relevant departments, to build a high-tech innovation service platform, and to provide financial support and services for enterprises.<sup>[2]</sup>

Guilin's advantageous industry is tourism, and Liuzhou's advantageous industry is heavy industry. Comparing the industrial parks in Guilin and Liuzhou with different advantageous industries, the development of economic development zones is summarized. It can be seen that Liuzhou's industrial foundation is better for the development of automobile and equipment manufacturing industries with natural advantages, and the dominant industries are more closely linked to the endowment advantages, Guilin's advantage lies in the good natural environment and more institutions of higher learning, the dominant industries of the two industrial parks in Guilin have not given full play to the endowment advantages of Guilin, and there are still potential resources of higher learning institutions to be developed. In terms of problems, Guilin Economic and Technological Development Zone and Liuzhou High-tech Industrial Development Zone both have equipment manufacturing industry, and Liuzhou's park developed earlier. Wu Wencui, Gu Weitao and other scholars believe that Liuzhou High-tech Industrial Development Zone has already appeared in the problem of low industrial relevance, the combination of industry, academia and research is not close, and the efficiency of cluster cooperation is low. Guilin Economic and Technological Development Zone is currently still in the stage of attracting investment and introducing high-quality enterprises. There are no such problems yet, but the previous experience of Liuzhou Hi-Tech Industrial Development Zone can be absorbed. Compared with Guilin Hi-Tech Industrial Development Zone, Guilin Economic and Technological Development Zone's dominant industry includes biomedical industry, and Guilin Hi-Tech Industrial Development Zone was established earlier, with a greater first-mover advantage, and has certain management and development experience, which is of certain reference significance to Guilin Economic and Technological Development Zone.

### **3. Analysis of Problems and Causes of Guilin Economic and Technological Development Zone Construction**

#### ***3.1. Problems in the Construction of Guilin Economic and Technological Development Zone***

Guilin Economic and Technological Development Zone has made certain development achievements, but in the process of construction, there are problems of high ecological and environmental risks in the zone, unbalanced and insufficient development of the zone, and insufficient number of high-quality enterprises and high-quality talents in the zone.

##### ***3.1.1. High ecological risk in the park***

There are potential environmental problems in Guilin Economic and Technological Development Zone, mainly including karst subsidence risk, water pollution and flooding. First, in terms of karst subsidence risk, Guilin Economic and Technological Development Zone has more serious underground cavern erosion, high risk of subsidence, and frequent accidents of highway subsidence in Lingui District, which threatens the transportation safety of Guilin Economic and Technological Development Zone. Second, in terms of water pollution, hydrological pollution in Guilin Economic and Technological Development Zone is more serious, lakes and rivers in the park are polluted to a high degree, and since 2022, the ecological environment management of Fengming Lake in the park has been a prominent problem, the water quality of the park is not up to the standard, the waterfront green space system is not perfect, and the natural environment has poorer restoration ability and lower environmental carrying capacity. Thirdly, in terms of flooding, Guilin Economic and Technological Development Zone has frequent floods, and flood hazards have a wide range, deep impact and high losses.

##### ***3.1.2. Unbalanced and insufficient development of the zone***

Guilin Economic and Technological Development Zone relies on two counties, four towns and twenty-eight villages as the main body to promote the economic cycle of the whole Guilin. However, at this stage, Guilin Economic and Technological Development Zone various kinds of high-quality talents and high-tech enterprises are basically concentrated in Lingui District, in which the planning area of Suqiao Area is as high as 67.14 square kilometers, the planning area of Liangjiang Area is 39.89 square kilometers, while the planning area of Linsu Belt is only 5.96 square kilometers, with the area of area

planning is insufficient, and the infrastructures between counties and towns are relatively weak, and the traffic of the park The main lines are dense in the south and sparse in the north. The residential land area of the park only accounts for 8.51% of the total planning area, and the population and economic carrying capacity is low. The unbalanced and insufficient economic development of the park has led to the weak industrial radiation capacity of Guilin Economic Development Zone.

### ***3.1.3. Insufficient number of quality enterprises and high-caliber talents in the park***

The number of high-quality enterprises and high-quality talents in Guilin Economic and Technological Development Zone at this stage is insufficient to meet the development of the park's economy. In the recruitment of Talent Service Center of Guilin Economic and Technological Development Zone in 2023, the proportion of positions requiring bachelor's degree and above in the total positions is low, the average monthly salary is about 3984 yuan, the number of positions requiring high professional quality is low, and the conditions for attracting high-quality talents are insufficient. The park has more labor-intensive and service-oriented positions and fewer high-quality talents. In terms of the number of enterprises in the park, the traditional manufacturing industry is still the main component of the park, the number of labor-intensive industries is high, and the overall scientific and technological content is low.

## ***3.2. Reasons for the existence of Guilin Economic and Technological Development Zone construction***

### ***3.2.1. Low enforcement of environmental protection supervision in the zone***

The Guilin Economic and Technological Development Zone and its surrounding zones have a low level of enforcement of environmental protection regulation, which makes a large number of enterprises discharge wastewater waste without standardization, thus leading to serious water pollution problems and high ecological and environmental risks in the zone. The Guilin Economic and Technological Development Zone has attracted numerous industrial enterprises and key sewage units. However, there is a significant number of sewage enterprises both within and surrounding the park that fail to comply with the park's sewage standards. To address this issue, a special campaign targeting illegal sewage discharge and remediation has been launched in the Guilin Economic and Technological Development Zone. A number of enterprises within the zone exhibit non-compliance with environmental regulations. Specifically, their environmental protection facilities are not functioning properly, resulting in improper sewage discharge that does not meet emission standards. Additionally, there are instances of improper storage and disposal of solid and hazardous waste. These deviations from standard procedures persist, as the level of park supervision is inadequate. The supervision system fails to promptly detect and rectify these issues, thereby allowing enterprises within the park to continue their environmentally harmful operations.

### ***3.2.2. Lack of standardization of production and management activities***

Production and management activities in Guilin Economic and Technological Development Zone are not standardized, and unregulated enterprise production has led to serious environmental problems, and unregulated park planning has led to an unbalanced distribution of resources in the zone, which has led to an unbalanced and insufficient development of the zone. In terms of production, in 2021, Guilin Economic and Technological Development Zone carried out actions to inspect enterprises in pharmaceuticals, food, printing, building materials and other related fields, with a total of 79 units (enterprises) inspected in comprehensive inspections, and as many as 67 rectification notices issued, with a high number of unqualified enterprises, and unstandardized enterprise management and production activities, which raised ecological and environmental risks. In terms of management, Guilin Economic and Technological Development Zone has a planned area of 142.7 square kilometers, of which 80 square kilometers are for construction and 40 square kilometers are for industrial use, the production land area is too large, and the land planning is not standardized, which leads to uneven distribution of resources, and unbalanced and insufficient development of the zone.

### ***3.2.3. Relatively low government policy support***

As an autonomous region-level development zone, Guilin Economic and Technological Development Zone has lower policy support compared to other development zones, and lower ability to attract high-quality enterprises and talents. In terms of investment, the Guilin Economic and Technological Development Zone had an annual investment of approximately 7.801 billion yuan in 2022. In contrast, the Guilin National High-tech Industrial Development Zone has planned to implement 60 projects of various types in 2022, with a total investment exceeding 50 billion yuan. The total investment of the

Guilin National High-tech Industrial Development Zone in 2021 amounted to about 58 billion yuan, whereas the Guilin Economic and Technological Development Zone's total investment in 2021 is projected to be only 15.872 billion yuan. This significant investment development gap is evident between the two zones. In terms of investment environment, Guilin Economic and Technological Development Zone within the scope of hospitals, primary and secondary schools, the number of commercial areas is relatively small, the lack of commercial support, medical support, education support, peripheral support, infrastructure needs to be improved.

#### **4. Countermeasures and Suggestions for Promoting the Development of Guilin Economic and Technological Development Zone.**

This paper contains a wealth of policy insights and proposes the following countermeasures to promote economic growth driven by the construction of Guilin Economic and Technological Development Zone.

##### ***4.1. Strengthening the enforcement of environmental protection regulation in the park***

Contending with the high ecological and environmental risks of the park, Guilin Economic and Technological Development Zone should actively strengthen cooperation with the government and collaboratively participate in the supervision of sewage and waste discharge, ensuring the effective implementation of environmental protection inspection and rectification efforts. It also conducts a comprehensive investigation of various zones identified as heavy pollution sources within the Guilin Economic and Technological Development Zone, and establish an information base for environmental hazards that provides comprehensive coverage. Based on the specific circumstances of the Guilin Economic and Technological Development Zone, it schedule regular inspection and supervision activities and promptly rectify any identified hidden dangers uncovered during the investigation.

##### ***4.2. Implementing the park's standardized production and management requirements***

In order to standardize production and management activities in Guilin Economic and Technological Development Zone, the environmental protection awareness and social responsibility of enterprises in the zone should be strengthened, the supervision of high-pollution and high-emission enterprises should be reinforced, and the environmental protection training of employees in the zone should be enhanced in order to improve the environmental protection awareness of enterprises. At the same time, a sound environmental management system should be established, environmental monitoring should be strengthened, the environmental protection complaint and reporting mechanism should be improved, and strict penalties should be imposed on the illegal discharge of wastewater and waste, so as to prompt enterprises to standardize their production and management.

##### ***4.3. Building a sustainable development path of "aggregation-transformation" through synergistic governance between government and parks***

Government departments shall strengthen policy support for Guilin Economic and Technological Development Zone, promote synergistic governance between the Guilin government and Guilin Economic and Technological Development Zone, strengthen investment in Guilin Economic and Technological Development Zone, and promote industrial agglomeration and optimization and upgrading of industrial structure. The Industrial Park Committee should implement the governance mechanism for industrial transformation and upgrading, enhance the demonstration and leading role of Guilin Economic and Technological Development Zone in Guilin's industrial transformation, focus on the economies of scale of the park's high-quality industrial agglomeration, utilize the policy-driven and park demonstration effects, enhance the utility of policy governance for industrial agglomeration, and promote Guilin's economy to improve its quality and efficiency. Building upon this foundation, it is essential to cultivate a favorable business environment by actively attracting a multitude of industrial chain projects that possess high-quality project support, thereby fostering economic development. Emphasis shall be placed on constructing industrial clusters characterized by well-developed industrial chains, robust innovation capabilities, and unique characteristics. <sup>[3]</sup>

#### **4.4. Promoting high-quality development of human capital level in Guilin Economic and Technological Development Zone according to local conditions**

The government of Guilin should consider improving the level of human capital in Guilin as one of the directions for future reforms, so as to further improve the innovative capacity of Guilin and promote the high-quality development of the Guilin economy. The government needs to improve Guilin's working and business environment by building high-quality and cost-effective transportation, housing, entertainment, financial and other infrastructure facilities. A comfortable environment is conducive to the settlement of enterprises and the work and life of employees, improving productivity and attracting high-quality talents and high-quality enterprises to settle in Guilin, encouraging the Guilin Economic and Technological Development Zone to establish innovation alliances with higher education institutions, fostering the creation of new scientific research bases and elevating the quantity and quality of human capital resources. [4]

#### **4.5. Optimize the allocation of financial, human capital and other resources to strengthen project investment and construction**

Concentrating investments in high-quality projects by channeling human capital and other valuable resources such as finance, aiming to stimulate project investments and cultivate high-quality industries within the Guilin Economic and Technological Development Zone will facilitate the rationalization and modernization of the industrial structure, ultimately promoting the high-quality development of the Guilin economy. Guilin Economic and Technological Development Zone also needs to continue to focus quality human, financial and other resources to invest in high-quality projects, drive investment and employment, enhance the park's radiation-driven capacity, build the park's industrial clusters, promote the high-quality development of industrial parks, create a demonstration point for Guilin's industrial revitalization, and work hard to build the Guilin Economic and Technological Development Zone into a 100-billion-grade industrial park, and a new highland for Guilin's industry-city integration and development reform and opening-up. [5]

### **5. Conclusions**

This paper studies the current situation of Guilin Economic and Technological Development Zone, analyzes the problems of production and life, ecological environment and industrial transformation in the construction process of Guilin Economic and Technological Development Zone through literature research method and status quo analysis method, researches the causes of the problems, analyzes and compares the three major industrial parks of Guilin Economic and Technological Development Zone, Guilin High-tech Industrial Development Zone, Liuzhou High-tech Industrial Development Zone in terms of their endowment advantages and dominant industries, sums up the problems and countermeasures in the development of the problems and recommendations, and puts forward the contending guidance based on the actual situation and the problems of Guilin Economic and Technological Development Zone in the current stage.

### **References**

- [1] Li Hong, Zou Qing. (2018). *Environmental Regulations, Resource Endowments and Urban Industry Transformation: Comparative Analysis of Resource-based and Non-resource-based Cities*. *Economic Research Journal* (11), 182-198.
- [2] Sun Wei, Lin Xiaona. (2020). *The Spatial Distribution of Automobile Manufacturing Enterprises and its Influencing Factors in Liuzhou*. *Journal of Geo-information Science* (06), 1216-1227.
- [3] Yang Haochang, Li Lianshui, Liu Jun. (2018). *Industrial agglomeration and total factor productivity of cities in China*. *Science Research Management* (01), 83-89.
- [4] Zhang Hongxia, Ge Qianqian, Lu Chao. (2022). *Pilot Free Trade Zones, Institutional Innovation and Regional High-quality Economic Growth*. *Statistics & Decision* (01), 90-94.
- [5] Song Min, Zhou Peng, Si Haitao. (2021). *Financial Technology and Enterprise Total Factor Productivity--Perspective of "Enabling" and Credit Rationing*. *China Industrial Economics* (04), 138-155.