

# Analysis of the Effectiveness and Countermeasures of High-Quality Economic Development in the Pearl River Delta City Cluster

Zhen Zhang<sup>1</sup>, Sen Lin<sup>2</sup>

<sup>1</sup>Department of Economics, Guangdong Institute of Public Administration, Guangzhou, China

<sup>2</sup>Decision Consultation Department, Guangdong Institute of Public Administration, Guangzhou, China

Email: zhangzhen2017jndx@163.com, linsen031999@126.com

**How to cite this paper:** Zhang, Z., & Lin, S. (2022). Analysis of the Effectiveness and Countermeasures of High-Quality Economic Development in the Pearl River Delta City Cluster. *American Journal of Industrial and Business Management*, 12, 984-994. <https://doi.org/10.4236/ajibm.2022.125050>

**Received:** April 17, 2022

**Accepted:** May 24, 2022

**Published:** May 27, 2022

Copyright © 2022 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

Through quantitative analysis method, this paper studies the effect of high-quality economic development in PRD urban agglomeration from five aspects: innovation, coordination, green, openness and sharing. The results are as follows: The overall situation of high-quality development has an obvious positive trend. The problem of coordinated development has been alleviated, the income gap between urban and rural areas has been gradually narrowed, the level of green development has been improved, individual cities and prefecture-level cities still face great pressure to control the growth rate of energy consumption, the degree of opening up still needs to be deepened, and the real consumption power of people experiencing shared development has been rising. Therefore, to promote the high-quality economic development of the PRD urban agglomeration in the future, it is necessary to rationally coordinate the synergistic development relationship between different aspects within the system, make up for the shortcomings, and synchronously promote the innovative, coordinated, green, open and shared development.

## Keywords

Regional Economy, Quality Economic Development, Pearl River Delta City Cluster, Countermeasures

## 1. Introduction

As one of the major city clusters in China, the Pearl River Delta City Cluster (PRD city cluster) has a high degree of economic, social, cultural and technolo-

gical development, and is one of the important growth poles for the high-quality development of China's regional economy. A reasonable grasp of the status of the high-quality economic development of the PRD city cluster will have a significant impact on the high-quality development of the national regional economy.

President Xi Jinping has also proposed on several occasions to "develop several new power sources to drive high-quality development across the country, especially the Beijing-Tianjin-Hebei region, the Yangtze River Delta and the Pearl River Delta, as well as some major city clusters". In view of this, this paper focuses on the analysis of the phased results of the high-quality economic development of the PRD city cluster and proposes measures to promote the response according to the corresponding situation.

## 2. Literature Review

At present, academic research on high-quality economic development is relatively abundant. Sun & Cheng (2022) have conducted in-depth research on the effectiveness of high-quality development in central China, the development characteristics and corresponding improvement measures; Zhang et al. (2020) have actively discussed the direction of the main driving force of high-quality development in China in the new era and its related formation path; Ren & Sun (2022) have analyzed the path and mechanism of cultivating new advantages of high-quality economic development in China mainly from the digital economy, etc. Many scholars have conducted research on high-quality economic development in China from different aspects and obtained relatively abundant results (Chao & Xue, 2020; Zhang et al., 2021; An et al., 2021). While the research on the economic quality development of urban agglomerations is still in its infancy, only individual scholars have made preliminary discussions. Just as Zhang & Qin (2021a) defined the concept of high-quality regional economic development as a development process in which a region forms a new structure by building innovative development dynamics, renewing development conditions and expanding opening to the outside world, thus significantly improving the efficiency and sustainability of economic growth and realizing the positive interaction between economy, society and ecology, so should the concept of high-quality development of urban agglomerations.

Integrated the above can be found, though the academia has high quality development level and characteristics of urban agglomeration economy, but the high quality special analysis of the PRD city cluster economy development stage there wasn't much research on the effectiveness of the majority of research is based on Guangdong-Hong Kong-Macao Greater Bay Area as the research object, is not entirely new development concept, build a index system is analyzed, The analysis results are difficult to accord with the real situation of the high-quality economic development of the Pearl River Delta urban agglomeration. Accordingly, this paper will mainly take the new development concept as the

standard, refer to the index design of “Analysis of Economic High-Quality Development in the Guangdong-Hong Kong-Macao Greater Bay Area”, “Measurement of Economic High-Quality Development of Chinese City Groups and Comparative Analysis of Differences”, and “Analysis of Differences in the Level of Economic High-Quality Development in the Yellow River Basin” to discuss the status of economic high-quality development of the PRD city cluster (Zhang & Qin, 2021b; Xiao & Yu, 2021; Zhang et al., 2022).

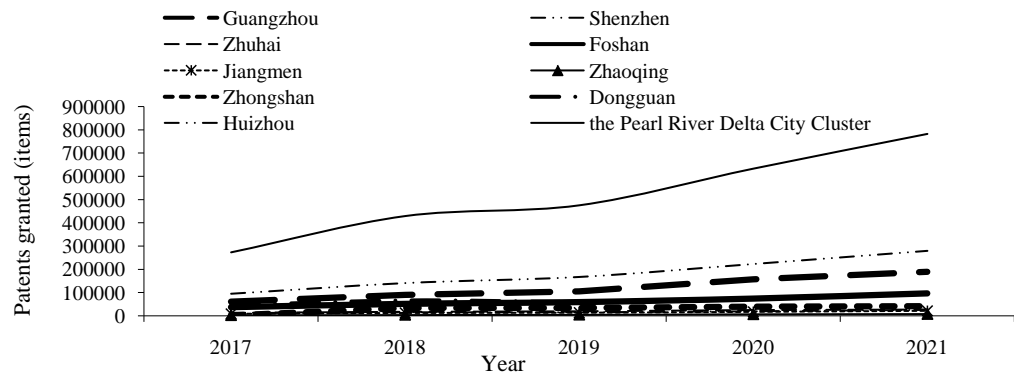
### **3. Analysis of the Stage Effectiveness of the High-Quality Economic Development of the PRD City Cluster**

President Xi Jinping has pointed out that “ideas are the forerunner of actions”. “The concept of development is strategic, programmatic and guiding. It embodies the thinking, direction and focus of development. With the right development philosophy, targets and tasks will be set, and policies and measures will follow.” The new development concept put forward by President Xi Jinping provides direction for high-quality development of China’s regional economy in the new era. High-quality economic development of urban agglomerations is a type of high-quality regional economic development, and belongs to an important part of China’s high-quality economic development (Zhang & Qin, 2021a). As a complex system project, the high-quality development of urban agglomerations is bound to involve numerous aspects.

According to the existing research results, most studies involve five aspects of the new development concept or one of them, according to the actual situation of the development of the PRD urban agglomeration. According to the actual situation of the development of the PRD city cluster, this paper will analyze the stage effectiveness of the high-quality economic development of the PRD city cluster in five aspects, including the level of innovation, coordination, greenness, openness and sharing, based on the main indicators selected from relevant studies. It should be noted here that in the absence of special indication, the original data used for analysis in this paper are all from Guangdong Statistical Yearbook.

#### **3.1. Level of Innovation in Economic Development**

Innovative development focuses on solving the problem of development momentum. In the process of China’s economic development, the innovation capacity of the PRD city cluster is relatively strong, but the development of internal cities varies greatly. **Figure 1** shows that the total number of authorized patent applications in the PRD city cluster has risen from 273,074 to 782,441 in 2017-2021, and the contribution of Shenzhen, Guangzhou and Dongguan is relatively large in this process, and the sum of authorized patent applications in the three cities has risen from 84.31% to 88.60%, and the respective percentages of the three have also risen from 34.51%, 22.05% and 27.75% to 35.68%, 24.16% and 28.76% respectively. The total share of patent applications granted in other prefecture-



**Figure 1.** Authorization of patent applications in the PRD city cluster original data Source: Guangdong statistical yearbook.

level cities in 2021 is only 11.4%. It can be found that the changes in the total number of authorized patent applications in the PRD city cluster and its different cities have shown that its economic development momentum is increasing year by year, among which Shenzhen, Guangzhou and Dongguan have relatively stronger development momentum, and other cities still have more room for improvement.

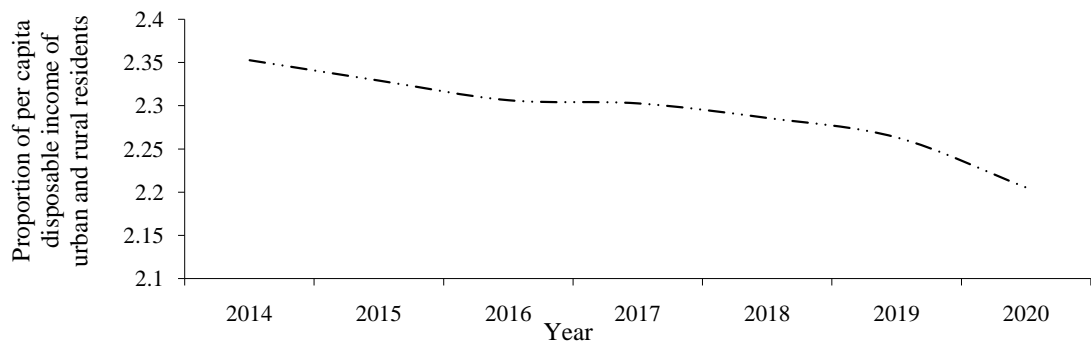
### 3.2. Level of Coordination of Economic Development

Coordinated development focuses on solving the problem of unbalanced development. In the process of China's economic development, the coordination problem of the development of the PRD city cluster has become increasingly prominent, and the urban-rural development gap is especially obvious in the relationship between regional, urban-rural, economic and social, material and spiritual civilization. **Figure 2** shows that the per capita disposable income ratio of urban and rural residents in the PRD city cluster has decreased from 2.35 to 2.21 from 2014 to 2020, and the gap between urban and rural residents' per capita disposable income has decreased by 6.27%. In terms of absolute income changes, the per capita disposable income of urban residents has increased from 37063.7 yuan to 59225.1 yuan, and the per capita disposable income of rural residents has also increased from 15,754 yuan to 26856.5 yuan, and the per capita disposable income of both urban and rural residents has shown a certain upward trend. It can be seen that in the process of high-quality economic development of the PRD city cluster, the gap between urban and rural incomes has gradually narrowed, and the problem of coordinated development in this regard has been gradually alleviated.

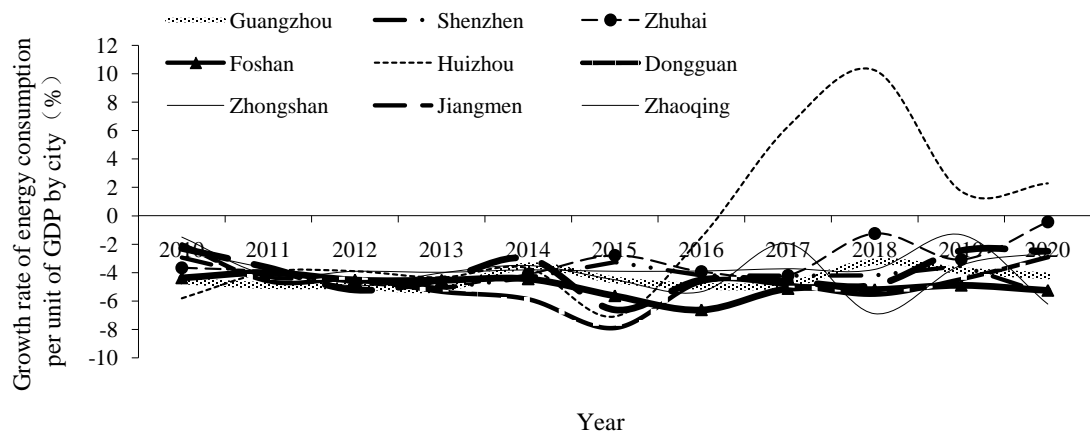
### 3.3. Green Level of Economic Development

Green development focuses on solving the problem of harmony between man and nature. The PRD city cluster is developing more rapidly and facing increasingly severe problems of resource constraints, serious environmental pollution and ecosystem degradation in terms of ecological environment, and the pursuit

of people’s taste for living environment is getting increasingly high. **Figure 3** shows that the growth rate of energy consumption per unit of GDP of the cities in the PRD city cluster from 2010 to 2020 shows a fluctuating downward trend in general, and only Huizhou and other cities show a large fluctuating upward state. Specifically, from 2010 to 2020, the growth rate of energy consumption per unit GDP in Zhongshan and Shenzhen has dropped from  $-1.5\%$  to  $-6.22\%$  and  $-2.94\%$  to  $-5.54\%$  respectively, and the growth rate of energy consumption per unit GDP in both cities has dropped by 4.72 percentage points and 2.6 percentage points respectively. The growth rate of energy consumption per unit GDP in Zhuhai and Huizhou has increased from  $-3.67\%$  to  $-0.44\%$  and  $-5.82\%$  to  $2.28\%$  respectively, and the growth rate of energy consumption per unit GDP in both cities has increased by 8.1 percentage points and 3.23 percentage points respectively. The comparison shows that in the process of high-quality economic development of the PRD city cluster, the level of green development is gradually improving, especially in terms of energy consumption per unit of GDP, but the pressure to reduce and control the growth rate of energy consumption in individual cities is still greater.



**Figure 2.** Proportion of per capita disposable income of urban and rural residents in pearl river delta urban agglomeration original data Source: Guangdong statistical yearbook.



**Figure 3.** Growth rate of energy consumption per unit of GDP by cities in the PRD city cluster original data Source: Guangdong statistical yearbook.

### 3.4. Economic Development Level of Openness

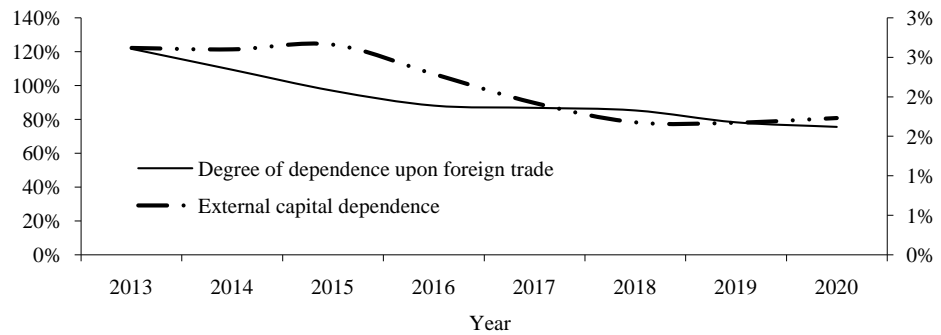
Open development focuses on solving the problem of internal and external linkage of development. The use of the two international and domestic markets and two resources by the PRD city cluster in the early stage provided the necessary conditions for its rapid economic development, and also helped to enhance the ability of China to cope with international economic and trade frictions and international economic discourse. **Figure 4** shows that the foreign trade dependence and foreign capital dependence of the PRD city cluster in general show a fluctuating downward trend from 2013 to 2020. Specifically, the foreign trade dependence of the PRD city cluster decreases from 121.65% to 75.60% from 2013 to 2020, and the total import also decreases from 2735.393 billion yuan to 2633.076 billion yuan, while the total export increases from 3769.826 billion yuan to 4134.606 billion yuan. In terms of foreign capital dependence, the PRD city cluster has decreased from 2.62% to 1.73% from 2013 to 2020, while the amount of actual foreign direct investment has increased from 139.986 billion yuan to 155.142 billion yuan. The comparison reveals that the decline in total imports has led to an overall decline in foreign trade dependence. Despite the increasing amount of real foreign direct investment, it is still small compared with the growth of total GDP, and the overall share has declined. It can be seen that in the process of high-quality economic development of the PRD city cluster, it is still necessary to continuously deepen the reform and opening up and precisely improve the level of external opening.

### 3.5. Shared Level of Economic Level

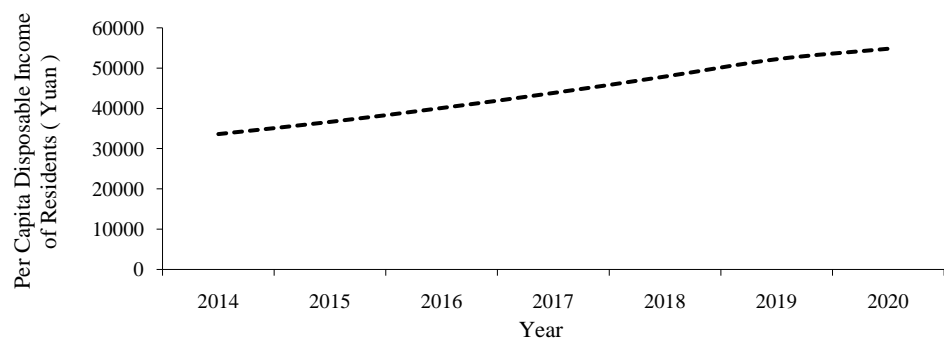
Shared development focuses on solving the problem of social equity and justice. In recent years, the economic scale of the PRD city cluster has been increasing, the gap between the level of public services in urban and rural areas and the problem of unfair distribution have become increasingly prominent, and there is still a lack of sharing and universal access to the fruits of reform and development. To a large extent, these problems need to rely on the continuous improvement of residents' consumption capacity, which is the per capita disposable income of residents, to achieve. As can be seen from **Figure 5**, the growth trend of per capita disposable income of all residents in the PRD city cluster from 2014 to 2020 is remarkable, having grown from 33642.1 yuan to 54809.6 yuan, with an average annual growth rate of 8.47%. It can be seen that in the process of high-quality economic development of the PRD city cluster, the actual consumption ability of the residents is increasing, and the comprehensive strength of sharing the fruits of development and reform is also increasing.

## 4. Countermeasures for the High-Quality Economic Development of the PRD City Cluster

Based on the above-mentioned stage results of the high-quality economic development of the PRD city cluster, and the obstacles faced by the PRD city cluster



**Figure 4.** External trade dependence and external capital dependence of the PRD city cluster original data Source: Guangdong statistical yearbook.



**Figure 5.** Per capita disposable income in the PRD city cluster original data Source: Guangdong statistical yearbook.

and its internal cities in the process of promoting high-quality economic development, this paper focuses on the following policy measures to promote the high-quality economic development of the PRD city cluster.

#### 4.1. Strengthening the Economic Development Momentum of the PRD City Cluster

The “innovation drive” has gradually replaced the “factor drive” as the main driving force for the high-quality economic development of the PRD city cluster. To enhance the level of science and technology innovation in the Guangdong-Hong Kong-Macao Greater Bay Area in the future, we should clarify the status of science and technology resources in the PRD city cluster, appropriately integrate the advantages of science and technology resources, and vigorously enhance the level of innovation networks. Further improve the scientific and technological innovation capacity of innovation subjects, establish a mechanism for sharing scientific and technological innovation resources among cities, build an international scientific and technological innovation center, and promote the emergence of new business models and new modes. At the same time, it is necessary to clarify the construction plan of the PRD city cluster, continuously strengthen the policy support of each region and improve the innovation collaboration relationship among each other, establish new platforms and mechan-

isms more suitable for the development of science and technology innovation in the PRD city cluster, provide favorable technical support for the emergence of new business models and modes in the new era, and promote the rising status of the PRD city cluster in the global industrial value chain.

#### **4.2. Innovating the Coordinated Regional Development of the PRD City Cluster**

Strengthen the role of cities such as Guangzhou and Shenzhen as growth poles of the city cluster, rationalize the relationship between different cities within the PRD city cluster and between the city cluster and the economic hinterland. Promote the shared development of the economic hinterland while moderately raising the urbanization level of the peripheral cities. Specifically, under the premise of following the law of urban collaboration, the future should be reasonably laid out for industrial development. For the pace of economic transformation in areas with larger economies and relatively faster growth rates (Foshan, Dongguan, etc.), promote the generation of new industries and new models, promote the transformation of economic development dynamics, and maintain a sustained and stable economic growth rate and level in order to enhance the coordination of economic development and promote high-quality regional development. For cities with smaller economic scale and slower growth rate (such as Zhaoqing and Jiangmen), they should focus on the development of special and advantageous industries and make reasonable use of national policy support, international resources and the opportunities of Guangdong-Hong Kong-Macao Greater Bay Area construction to achieve moderate economic scale expansion and growth rate increase. In addition, it is still necessary to pay attention to the optimization of industrial structure and industrial layout adjustment of urban and rural economies, gradually promote the shift of urban and rural economies from labor-intensive to technology-intensive, and continuously gather scattered township enterprises for integrated management in order to enhance the level of urban and rural economic development.

#### **4.3. Constructing a New Pattern of Opening up the PRD City Cluster**

Continuously increase the proportion of exports of new products with high technological content and added value, improve the efficiency of capital flow and the quality of foreign capital utilization, continuously strengthen external ties to enhance the quality of open development, and accelerate the development of high-level open economy in the PRD city cluster. Shenzhen, Zhuhai and Dongguan have certain scale advantages in goods trade exports and foreign investment utilization. In the process of future high-quality development, they should focus on innovative trade methods, optimize the structure of foreign trade goods, improve the technical level and value-added content of goods, and improve the current situation of foreign trade development. At the same time actively play the scale and agglomeration effect of foreign investment introduction, focusing



on supporting technology-intensive and knowledge-intensive industries, and promoting the development of high-end manufacturing, financial technology, cultural and creative as well as real estate industries. Huizhou, Jiangmen, Zhaoqing and other regions should give full play to their comparative advantages, make up for their development shortcomings, and actively use the existing relevant preferential policies to promote the scale of advantageous industries in order to enhance the level of foreign trade and foreign investment utilization and create favorable conditions for high-quality economic development.

#### **4.4. Improving the Modern Industrial System of the PRD City Cluster**

In the process of future development, the advantages of Guangzhou and Shenzhen in innovation R&D and operation headquarters, as well as the comparative advantages of Foshan, Dongguan, Huizhou and other regions in high-end manufacturing should be fully utilized to accelerate the speed of optimization and upgrading of traditional industries, moderately expand the scale of advanced manufacturing industries, rapidly upgrade the level of high-tech industries and improve industrial types, and actively explore the application of new production methods, such as cloud computing, Internet+ and other emerging technologies, in the field of high-end equipment manufacturing, promote the development of new manufacturing models such as scale personalization and cloud manufacturing, and create conditions for “manufacturing economy” to “smart economy”. In addition, the development level of the service industry should be upgraded, focusing on high-end, specialization, optimization and upgrading in the fields of cultural and creative, tourism services, health industry, shipping and logistics, and professional services, focusing on building a modern service industry system of coordination and cooperation, complementary advantages and staggered development.

#### **4.5. Improving the Level of Integrated Transportation in the PRD City Cluster**

In the future, in the process of actively promoting the integrated construction of comprehensive transportation in the PRD city cluster and creating a new pattern of staggered development and complementary advantages, the degree of interconnection of transportation infrastructure should be continuously improved, especially the interconnection of the Mainland with Hong Kong and Macao, the improvement of urban software and hardware infrastructure, and the moderate increase of comprehensive transportation hubs. Improve the structural share of transportation modes, and moderately increase rail transportation (urban rail, subway, high-speed rail, etc.) and railroad mileage. Integrate transportation resources, develop multimodal transportation, properly solve the barriers between sea, air and railroad transportation, realize the effective connection of air-sea, sea-rail, air-public and sea-public transportation, and enhance the efficiency of “integrated sea-land-air” transportation.

#### **4.6. Innovating Mechanism for Sharing the Outcome of Economic Development in the PRD City Cluster**

Taking into account the actual situation of the PRD city cluster in terms of shared development, while vigorously adhering to the important directions of universality, equalization, rationalization, and sustainability, and gradually promoting the formation and improvement of the basic public service system, we will benchmark well-known urban agglomerations at home and abroad and draw on their experiences in the development process of improving the living standards of residents, improving public infrastructure construction, and developing education and health care. Adopt differentiated strategies to make up for the shortcomings in healthcare, education, employment, public goods and other areas in a targeted manner, and narrow the gap between the shared levels of economic development in different regions.

#### **4.7. Complementing the Shortcomings of High-Quality Development in the PRD City Cluster**

For different cities in the PRD city cluster, they should obey the overall development strategy of the PRD city cluster in the process of future high-quality development, and solve their own shortcomings in accordance with local conditions while giving full play to their comparative advantages. For example, Shenzhen should focus on improving the teacher-student ratio, improving the current situation of foreign trade and foreign investment utilization, and strengthening the construction of transportation and information infrastructure. Guangzhou should focus on rationalizing the teacher-student ratio and actively solving urban employment problems to enhance the level of shared economic development. Huizhou and Jiangmen should take advantage of the opportunity of the development of the Guangdong-Hong Kong-Macao Greater Bay Area to vigorously promote the development of advanced manufacturing industries by relying on their own industrial base. Foshan and Zhaoqing should continuously enhance development efficiency, improve development mode, actively promote green and intelligent development process, and gradually reduce energy consumption to achieve clean development.

### **5. Conclusion**

This paper mainly analyzes the high-quality economic development of the PRD urban agglomeration from the perspective of new development concept. On the one hand, it focuses more on the main content of high-quality development and overcomes the shortcoming of diluting the role of main aspects by using too many indicators in existing literature. On the other hand, the evaluation ideas and data use are concise and clear, which is conducive to a clearer comparison to find the crux of the problem. At the same time, in view of the staged achievements of the high-quality economic development of the PRD urban agglomeration, the future smooth and sustainable improvement of the high-quality eco-

conomic development of the PRD city cluster should reasonably coordinate the synergistic development relationship of different aspects within the system, focusing on strengthening the economic development momentum of the PRD city cluster, innovating a coordinated regional development approach, constructing a new pattern of opening up to the outside world, improving the modern industrial system, improving the level of integrated transportation and Improve the mechanism of sharing the fruits of economic development in order to continuously make up for the shortcomings of high-quality development.

### Funding Information

This research was funded by the Guangzhou Philosophy and Social Science planning project (2021GZGJ17), the 2021 School (College) General project of Guangdong Institute of Public Administration (XYBY202109).

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

### References

- An, S. W., Song, W. Z., & Zhang, J. J. (2021). Study on High Quality Development of Three Major Coastal City Groups. *Research on Development*, 3, 44-50+2.
- Chao, X. J., & Xue, Z. X. (2020). Mechanisms and Paths for Promoting China's High-Quality Economic Development with the New Economy. *Journal of Northwest University (Philosophy and Social Sciences Edition)*, 1, 49-56.
- Ren, B. P., & Sun, Y. X. (2022). The Mechanism and Path of Digital Economy to Cultivate New Advantages for China's High-Quality Economic Development. *Economic Review*, 4, 38-48.
- Sun, J. W., & Cheng, Y. Q. (2022). Effectiveness, Characteristics and Countermeasure Suggestions of High-Quality Development in Central Region. *Governance Modernization Study*, 38, 27-33.
- Xiao, D., & Yu, F. (2021). Measurement of High-Quality Economic Development of Chinese Urban Agglomerations and Comparative Analysis of Differences. *Journal of Macro-Quality Research*, 3, 86-98.
- Zhang, K. Y., Pei, X. Y., & Cai, Z. B. (2020). Research on the Direction of Power Transformation and the Formation Path of China's Regional High-Quality Development in the New Era. *Xinjiang Finance*, 2, 5-17.
- Zhang, Z., & Qin, C. L. (2021a). Analysis of High-Quality Economic Development of Beijing-Tianjin-Hebei City Cluster in the New Period. *Urban Problems*, 9, 38-48.
- Zhang, Z., & Qin, C. L. (2021b). Analysis of High-Quality Economic Development in the Guangdong-Hong Kong-Macao Greater Bay Area. *Reform of Economic System*, 3, 39-46.
- Zhang, Z., Wang, Z. Y., & Li, Y. (2021). A Review of Research on Quality Development of China's Regional Economy. *Resource Development & Market*, 8, 928-933.
- Zhang, Z., Xu, J. H., Gao, Q. et al. (2022). Analysis of Differences in the Level of Quality Economic Development in the Yellow River Basin. *Scientific Management Research*, 1, 100-109.