A Study on Guangdong Province Foreign Trade Business Environment Evaluation and Optimization Research

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Abstract: By constructing a comprehensive evaluation system for Guangdong's foreign trade business environment based on the annual data from 2015 to 2019, factor analysis and entropy weight method are adopted to analyze Guangdong's foreign trade business environment in recent years. This study discusses the aspects that the government should focus on in order to improve the foreign trade business environment more effectively. The results of the study are as follows: first, the overall differences in the foreign trade business environment of the Pearl River Delta urban agglomeration are small, and the cities play an important role in improving the foreign trade business environment; second, the foreign trade business environment is not fully constrained by economic development, so the foreign trade business environment can be more advanced than the city's economic level and serve as the impetus for economic growth; third, there has been an improvement in how the attractiveness of foreign capital influences the foreign trade business environment. The Regional Comprehensive Economic Partnership (RCEP) agreement should be implemented in local cities, in order to construct an institutional framework of fair competition, enhance the transparency of investment barriers, and strengthen the protection of foreign investors' rights.

Keywords: Foreign trade business environment; Indicator system; Entropy weight method; Investment barriers

1. Introduction

The business environment refers to the sum of external factors and conditions, such as the government service environment, market environment, legal environment, and humanistic environment, involved in the process of market entry, production and operation, and exit [1]. The 14th Five-Year Plan proposes to accelerate the construction of a market-oriented, legalized, and international business environment and give full play to the vitality and potential of market players. Local governments have effectively attracted investment and improve competitiveness by optimizing the business environment [2]. In recent years, the Sino-US trade war and the new crown epidemic have impacted Guangdong to a certain degree, which regards foreign trade as its economic growth point. The foreign trade business environment should be prioritized in light of economic uncertainty and the significant increase in risk aversion of foreign investors.

2. Evaluation of the level of foreign trade business environment
2.1. Construction of the foreign trade business environment

In order to evaluate the foreign trade business environment of Guangdong more comprehensively,

Guangdong foreign trade business environment evaluation index system mainly consists of four sub-environments; namely, foreign trade government environment, foreign trade legal environment, foreign trade financing environment, and foreign trade market environment, which include 11 secondary indicators and 29 tertiary indicators [3].

2.2. Data sources

The data in this article are mainly from 2015-2019 "Guangdong Statistical Yearbook," "China Urban Statistical Yearbook," "Judgment Documents Network," and "China Arbitration Network." The following steps are taken in dealing with missing values and outliers in the data: firstly, look for relevant urban statistical yearbooks, China National Knowledge Infrastructure (CNKI) statistical yearbooks, national economic, and social development statistical bulletins, and then check their accuracy and authenticity. If verified, the outliers are treated as missing values, and the mean interpolation method and regression interpolation method are used for processing.

In order determine whether factor analysis can be used, Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity were tested after standardization of raw data from 2015 to 2019 before extracting common factors. As shown in **Table 1**, the KMO test value is 0.849, so the correlation between variables is not significantly different, which proves that the selected index variables are suitable for factor analysis.

Table 1. KMO and Bartlett's sphericity test results

KMO sampling adequacy	0.849
Approximate chi-square	3485.123
Degrees of freedom	351
Significance	0.000

The total variance explained by factor analysis is shown in **Table 2**. There are 5 eigenvalues with variance greater than 1 in **Table 2**. Twenty-seven variables are reduced to power to obtain 5 common factors, and the cumulative variance contribution rate of the first five common factors reached 73.08%, indicating that the five common factors contain most of the information of the original variables and meet the extraction requirements.

Table 2. Total variance explained

Component	Initial Eigenvalue			Extraction of squares and loading			Rotation square and loading		
	Sum	Variance contribu--tion rate	Variance contribu--tion rate (%)	Sum	Variance contribu--tion rate	Accumulated variance contribution rate	Sum	Contribu--tion rate	Accumulated variance contribution rate
1	12.96479	0.463	0.463	12.96479	0.463	0.463	11.21153	0.4004	400.04
2	3.44894	0.1232	0.5862	3.44894	0.1232	0.5862	4.3569	0.1556	55.6
3	1.70134	0.0608	0.647	1.70134	0.0608	0.647	1.8315	0.0654	62.14
4	1.30842	0.0467	0.6937	1.30842	0.0467	0.6937	1.55274	0.0555	67.69
5	1.0385	0.0371	0.7308	1.0385	0.0371	0.7308	1.50932	0.0539	73.08
6	0.91091	0.0325	0.7633						
7	0.8532	0.0305	0.7938						

Component	Initial Eigenvalue			Extraction of squares and loading			Rotation square and loading		
	Sum	Variance contribu--tion rate	Variance contribu--tion rate (%)	Sum	Variance contribu--tion rate	Accumulated variance contribution rate	Sum	Contribu--tion rate	Accumulated variance contribution rate
8	0.82521	0.0295	0.8233						
9	0.80632	0.0288	0.8521						
10	0.7017	0.0251	0.8771						
11	0.66462	0.0237	0.9009						
12	0.57398	0.0205	0.9214						
13	0.48656	0.0174	0.9387						
14	0.34186	0.0122	0.9509						
15	0.25499	0.0091	0.96						
16	0.23462	0.0084	0.9684						
17	0.17807	0.0064	0.9748						
18	0.17252	0.0062	0.9809						
19	0.15105	0.0054	0.9863						
20	0.12278	0.0044	0.9907						
21	0.07184	0.0026	0.9933						
22	0.05493	0.002	0.9953						
23	0.04602	0.0016	0.9969						
24	0.03226	0.0012	0.9981						
25	0.0238	0.0008	0.9989						
26	0.0164	0.0006	0.9995						
27	0.00934	0.0003	0.9998						
28	0.00502	0.0002	1						

3. Comprehensive analysis of Guangdong's foreign trade business environment

3.1. Overall evaluation of Guangdong's foreign trade business environment

The overall score of Guangdong's foreign trade business environment has increased year by year from 2015 to 2019. The trend reflects that Guangdong Province's supportive policies for foreign trade enterprises are effective. The overall scores of Guangdong's foreign trade business environment from 2015 to 2019 are shown in **Table 3**.

Table 3. Overall score of Guangdong's foreign trade business environment in 2015-2019.

Year	2015	2016	2017	2018	2019
Score	0.03	0.85	1.27	1.71	4.85

The average score of Guangdong's foreign trade business environment is 0.09, with 8 cities scoring higher than the average score. The scores of Shenzhen and Dongguan are significantly higher than other cities. Shenzhen, which has the most comprehensive environment for foreign trade and business, scored 0.28, while Meizhou has the lowest score, which is 0.00. The rankings of other cities are shown in **Table 4**.

Table 4. Overall score of foreign trade business environment in Guangdong Province from 2015 to 2019

City	Score	Rank	City	Score	Rank
Dongguan	0.20	2	Heyuan	0.01	19
Zhongshan	0.13	6	Shenzhen	0.28	1
Yunfu	0.05	15	Qingyuan	0.04	16
Foshan	0.13	7	Zhanjiang	0.01	20
Guangzhou	0.17	3	Chaozhou	0.09	9
Huizhou	0.14	5	Zhuhai	0.16	4
Jieyang	0.02	17	Zhaoqing	0.02	18
Meizhou	0.00	21	Maoming	0.07	13
Shantou	0.08	11	Yangjiang	0.09	10
Shanwei	0.07	14	Shaoguan	0.07	12
Jiangmen	0.10	8			

3.2. Classification of foreign trade business environment in Guangdong Province

(1) Category A (overall evaluation is above 0.14)

There are five cities in Category A business environment, namely Shenzhen, Dongguan, Guangzhou, Zhuhai, and Huizhou. Among them, Shenzhen scored the highest, surpassing Dongguan by 0.08 points. All five cities are located in the Pearl River Delta urban agglomeration. However, it should be noted that in addition to Guangzhou and Zhuhai, two established cities with strong economic development, Dongguan and Huizhou are gradually making efforts. The Hong Kong-Zhuhai-Macao Bridge supported by Zhuhai has achieved closer and more frequent economic and trade ties with Hong Kong and Macao, thus showing great economic potential [4]. During the 13th Five-Year Plan period, Dongguan's foreign trade import and export exceeded RMB1.3 trillion, placing them as one top three cities among China's top 100 foreign trade cities for three consecutive years. The excellent performance of the foreign trade business environment in Dongguan and Zhuhai is the result of the combination of the vigorous development of local foreign trade in recent years and the efforts of the local government to improve the business environment [5]. Huizhou's score is 0.14, placing it at the brink of the first echelon. Huizhou's GDP ranks fifth in Guangdong Province. Huizhou's foreign trade business environment scores were shown to be mostly influenced by its economic strength. Foreign trade friendliness and macroeconomics have less impact on the scores [6].

(2) Category B (overall evaluation is between 0.13 and 0.07)

There are five cities in Class B business environment; namely, Zhongshan City, Foshan City, Jiangmen City, Yangjiang City, and Chaozhou City. Among them, Zhongshan City and Jiangmen City are not core cities in the Pearl River Delta; Chaozhou and Yangjiang are cities with scores above C as non-Pearl River Delta cities. The economic strength of Zhongshan City is in the upper-middle level among B-class cities. However, the traditional industries in Zhongshan City are yet to be transformed and upgraded [7]. The economic strength of Foshan is at par with A-class cities, but its foreign trade business environment score is lower than that of Huizhou and Zhongshan, which are weaker in terms of economic strength. Foshan's foreign trade business environment has restricted the high-quality development of its foreign trade economy to a certain extent [8]. The local government has difficulty in integrating the foreign trade economy of various districts and creating an overall foreign trade business environment in Foshan. In recent years, Jiangmen City has implemented the "no ban or entry" rule. Thanks to the improvement of the fair competition market environment, the foreign capital has increased [9]. As the only city in western Guangdong, Yangjiang is the only city in category B for many reasons. From 2015 to 2019, there was

no high-speed rail development in Yangjiang. Its pillar industries include the alloy material industry and wind energy industry. Its hardware knife and scissors industry is relatively established, and its international influence and discourse power are both impressive [10].

(3) Category C (overall evaluation below 0.07)

There are 10 business environments in Category C, which are Shantou City, Shaoguan City, Maoming City, Shanwei City, Yunfu City, Qingyuan City, Jieyang City, Zhaoqing City, and Zhanjiang City, and Meizhou City. The only Pearl River Delta city in Category C is Zhaoqing City, whose score is the third lowest in Category C and the lowest among Pearl River Delta cities **Error! Reference source not found.**. This is because there are fewer industries that can be undertaken compared to Foshan and Dongguan, and it is unclear which ones are leading in Zhaoqing City. Shantou City has the highest score among C-class cities, only 0.01 point behind B-class cities. However, Shantou's foreign trade business environment score does not match its policy inclination as a special economic zone [12]. The main problem is that Shantou's industrial structure is disorganized and is yet to form a comparative advantage in emerging technological industries [13]. Maoming City has the highest score in the western region of Guangdong. The active participation of Maoming City in the Eastern Economic Corridor of Thailand and the collaboration with ASEAN in green chemicals and new materials in recent years have resulted in the improvement of foreign trade and business environment [14]. In general, most of the C-type cities either have less benefits under the international cycle than under the domestic economic cycle or the gap between the two is negligible [15]. In addition, the degree of marketization, the rule of law, and the vitality of private economy are all relatively low. Therefore, the foreign trade business environment has a lower score [16].

4. Conclusion and recommendations

4.1. Conclusion

Foreign trade and business environment can be more advanced than urban economic level

Based on the foreign trade and business environment scores of Guangdong cities, it was found that the business environment is not proportionate to the level of economic development **Error! Reference source not found.**. For example, Guangzhou has better economic development than Dongguan, but Dongguan is significantly better than Guangzhou in terms of foreign trade and business environment [18]. Therefore, although the foreign trade and business environment is related to the city's economic scale, industrial base, and other economic factors, it may not be limited by the degree of economic development. Commitment in improving the foreign trade business environment [19] will definitely make it possible to form new economic growth points, which in turn promotes economic growth.

4.2. Recommendations

Each modification of the "Negative List of Pilot Free Trade Zone" in Guangdong Province indicates a decline in investment barriers. However, it is considered an administrative order rather than having a legal status. It cannot be used as evidence for judicial arbitrament. Hence, it still has a substantial portion on releasing foreign investment [20]. In such circumstances, the government should implement the Regional Comprehensive Economic Partnership (RCEP), which came into force on January 1st, 2022, so as to construct an institutional framework of fair competition, enhance the transparency of investment barriers, and strengthen the protection of foreign investors' rights.

Disclosure statement

The authors declare no conflict of interest.

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