Research on the Measurement of the New Kinetic Energy of Economic Development in Guangdong Province Based on Factor Analysis

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Abstract: Guangdong Province is the largest economic province in China. The study on the measurement of the new kinetic energy of economic development in Guangdong Province is helpful to the high-quality development of Guangdong's economy. Taking Guangdong Province as an example, 13 indicators were selected from four dimensions of openness level, development effectiveness, scientific and technological innovation, and economic vitality to construct a measurement and evaluation system for the new kinetic energy of economic development in Guangdong Province. Three common factors, namely external and science and technology, innovation and development, and economic vitality, were obtained by using factor analysis method. The total score of the new kinetic energy of economic development in Guangdong Province was calculated and empirically analyzed. The model has a good effect and the empirical results show that the growth rate of the new growth drivers of Guangdong's economy is obvious, but it is still at a low level of development, and there is a large room for improvement. Finally, three suggestions are put forward to stimulate innovation, enhance the openness level and optimize the industrial structure.

1. Introduction

At present, the situation between China and the global economy is complicated. Events such as the Russia-Ukraine crisis and the US Federal Reserve's interest rate hike are dragging down global economic growth. In January, the IMF cut its forecast for global growth in 2022, at the same time as China's growth forecast was lowered to 4.4 %. Under this environment, the economic development of Guangdong Province, which is the largest economic province in China, is also relatively slow in recent years. Therefore, it is particularly important to put forward reasonable policy suggestions to further promote the high-quality economic development of Guangdong Province by studying the measurement of the new kinetic energy of economic development in Guangdong Province. At present, some domestic scholars are studying the new driving forces of the economy as the theme. Chenggang Li and Jun Wan et al. [1] used the entropy method to comprehensively evaluate the new kinetic energy of Guizhou Province, and found that the new kinetic energy of Guizhou Province were at a low level. They used the econometric analysis model to find out the factors affecting the new kinetic energy of

Guizhou Province, and found that the industrial level had an inhibitory effect on the development of the new kinetic energy of Guizhou Province. The advantage of this method is to ensure the rationality and scientificity of the new kinetic energy composite index from multiple perspectives. The disadvantage of the method is that it is highly dependent on samples and easy to lead to weight distortion. Jing Wu et al. [2] established a hierarchical structure analysis model to evaluate the transformation of old and new kinetic energy in Qingdao, and found that the transformation of kinetic energy in Qingdao is in an accelerated development period, and there is still a certain distance from the basic formation stage. Its advantage lies in the construction of a kinetic energy system theoretical framework to meet the needs of economic development in the new era. Its disadvantage lies in the strong subjectivity of the analytic hierarchy process. Zhi Wei, Guangcai Wan, Jiaming zhu [3], used principal component analysis (pca) on different regional economic new kinetic energy in Anhui Province statistical measure and the empirical analysis, fuzzy comprehensive evaluation method is found new cities in Anhui Province economic momentum in unbalance. Digital economy and innovation-driven indicators have the greatest impact on the score of new economic kinetic energy of Anhui Province, while green development indicators have the least impact. Its advantage lies in the quantitative empirical analysis of the selected research objects. The deficiency lies in that the cumulative variance value of the selected components after dimensionality reduction is less than 85%, and the model effect is not good. Guangdong Province is the largest economic province in China, which can reflect the economic trend and direction of China. By sorting out the relevant literature on the new kinetic energy, we find that there are few literatures on the measurement of the new kinetic energy in Guangdong Province. Meanwhile, most literatures on the new kinetic energy are confined to theoretical analysis and few empirical studies. Therefore, this paper takes Guangdong Province as the research object, constructs the index system of the new kinetic energy of Guangdong province, and uses appropriate methods to empirically analyze the new kinetic energy of Guangdong Province from 2006 to 2020.

2. Establishment and data sources of the measurement index system of the new economic kinetic energy of Guangdong Province

By reviewing certain literature, we learned that in 2016, the National Bureau of Statistics [4] proposed 42 evaluation indicators for new kinetic energy of the economy, including six aspects: economic vitality, knowledge and ability, innovation-driven, digital economy, transformation and upgrading and development effectiveness. In 2019, Qiang He et al. [5] took capacity base, agricultural modernization, industrial integration and development effect as first-level indicators to construct the new kinetic energy index of rural economic development. In 2021, Shuwen Liu, Shenggang Yang, Yang Yang et al. [6] established the conversion index system of old and new kinetic energy for China's rural economic development by taking demand-side kinetic energy, supply-side kinetic energy and structural transformation kinetic energy as secondary indicators. In 2022, Zhi Wei et al. [7] established the evaluation index system of the new kinetic energy of Anhui Province's economy by taking innovation-driven, digital economy, green development and openness level as the criterion level. At the same time, in order to facilitate the collection of research data, we decided to establish an index system from four dimensions: openness level, development effect, scientific and technological innovation, and economic vitality, according to the statistical items in Guangdong Statistical Yearbook, the particularity of Guangdong's economic development and our own economic knowledge.

Openness level is an important source of new kinetic energy for Guangdong's economy. In this paper, we specifically selected the total export volume, the total import and export volume of foreign-invested enterprises, the number of foreign contracted engineering contracts, and the proportion of

high-tech products export to reflect the openness level in the economic momentum of Guangdong Province. Development effectiveness is an important factor influencing people's judgment on the development of the new kinetic energy of Guangdong's economy. In this paper, we specifically selected two indicators of energy consumption per unit GDP and per capita GDP to reflect the development effect of the economic momentum of Guangdong Province. Scientific and technological innovation is an important driving force for economic development. In this paper, we specifically selected the number of patent acceptance, the proportion of technical contract transaction in GDP, the number of professional and technical personnel at the end of the year in public economy enterprises, and the personnel engaged in scientific research and experimental development activities to reflect the scientific and technological innovation in the economic kinetic energy of Guangdong Province. Economic vitality reflects the development of new drivers of growth. In this paper, we specifically selected three indicators: GDP growth index, the proportion of final consumption in GDP, and the added value of financial industry to reflect the economic vitality in the economic momentum of Guangdong Province. The results are shown in Table 1.

In order to make the model results more accurate, this paper selects the data of Guangdong Province from 2006 to 2020. In order to make the data more reliable, the data are obtained from the Statistical Yearbook of Guangdong Province, the special network database of China Economic Network, and the Statistical database of China Economic Network.

Table 1: Measurement index system of the new economic kinetic energy of Guangdong Province

First-Level Indicators	Second-Level Indicators	Unit	Index attribute
Openness Level	Total Export Volume	100 million yuan	positive
	Total Import and Export Volume of Foreign-Invested Enterprises	100 thousand dollars	positive
	Number of Foreign Contracted Engineering Contracts	/	positive
	Proportion of high-tech products export	%	positive
Development Effectiveness	Energy Consumption per unit GDP	ton	negative
Scientific and Technological Innovation	per capita GDP	yuan	positive
	Number of patent acceptance	/	positive
	Proportion of Technical Contract Transaction in GDP	%	positive
	Number of Professional and Technical Personnel at the End of the Year in Public Economy Enterprises	person	positive
	Personnel Engaged in Scientific Research and Experimental Development Activities	person	positive
Economic Vitality	GDP growth index	/	positive
	Proportion of Final Consumption in GDP	%	positive
	Added Value of Financial Industry	100 million yuan	positive

3. Establishment of measurement model of new kinetic energy of Guangdong economy

3.1. Research Ideas

How to scientifically evaluate the score of the new economic kinetic energy of Guangdong Province in each year according to the index system of measuring the new economic kinetic energy of Guangdong Province is the main problem encountered in this study. Through reading relevant literature, we find that quantifying the importance of each index system, that is, the calculation of the weight of the index system, is the key to solve the above problems. To this end, we have consulted relevant literature and learned that analytic hierarchy process, entropy method, coefficient of variation method and factor analysis method are common methods for weight calculation at present. The analytic hierarchy process requires less quantitative data information but strong subjectivity; Entropy

method is more objective, but it is more dependent on the sample and easy to lead to weight distortion. The coefficient of variation method does not need to refer to the average of the data but is less accurate. In contrast, factor analysis can reduce the dimension of index system and the result is objective. To sum up, we decided to adopt factor analysis method to quantify the importance of each index system for measuring the new kinetic energy of Guangdong economy so as to evaluate the score of the new kinetic energy of Guangdong economy in each year scientifically.

3.2. Research Methods

Factor analysis is a kind of statistical analysis method, this paper mainly based on Guangdong economy new kinetic energy measure dimension reduction, by exploring new kinetic energy economy of guangdong province to measure the indicator variables between the correlation coefficient matrix, according to the size of correlation of these variables on the group, the index, the correlation among the variables within the same group is higher, the correlation of different set of indicator variables is low, The new variables that represent the basic structure of each set of data are called common factors. In simple terms, the factor analysis is not as much as possible loss or loss of original data information, the new kinetic energy measurement index system in Guangdong Province economic complex of many variables are aggregated into a handful of independent public factor, these a few common factor can reflect the original Guangdong Province economy new kinetic energy measure index system of the main information of many variables, It not only reduces the number of indicator variables, but also reflects the internal relationship between indicator variables. Therefore, in factor analysis, each indicator variable of the measure of the new kinetic energy of Guangdong's economy can be expressed as the sum of the linear function of the common factor and the special factor, which can be expressed as Equation (1) by matrix:

$$Y = \omega \gamma + \varepsilon \tag{1}$$

Among them

$$Y = \begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_p \end{bmatrix}, \quad \omega = \begin{bmatrix} \omega_{11} & \omega_{12} & \cdots & \omega_{1m} \\ \omega_{21} & \omega_{22} & \cdots & \omega_{2m} \\ \cdots & \cdots & \cdots & \cdots \\ \omega_{p1} & \omega_{p2} & \cdots & \omega_{pm} \end{bmatrix}, \quad \gamma = \begin{bmatrix} \gamma_1 \\ \gamma_2 \\ \vdots \\ \gamma_m \end{bmatrix}, \quad \varepsilon = \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_p \end{bmatrix}$$

And meet:
(1) $m \le p$;
(2) $\text{Cov}(\gamma, \varepsilon) = 0$, This means that the common factor is independent of the particular factor;

(3) $D(\gamma) = \begin{bmatrix} 1 & & & 0 \\ & 1 & & \\ & & \ddots & \\ 0 & & & 1 \end{bmatrix}$, It means that the common factors are independent and the variance is one;

(4) $D(\varepsilon) = \begin{bmatrix} \sigma_1^2 & & & 0 \\ & \sigma_2^2 & & \\ & & \ddots & \\ 0 & & & \sigma_p^2 \end{bmatrix}$, This means that the special factors are independent;

We will take the variance contribution rate of each factor as the weight to calculate the overall score of each object.

3.3. Result Analysis

3.3.1. Model Checking

Through SPSS software, we conducted KMO and Bartlett tests. The KMO test is used to test the correlation and partial correlation of each index in the measurement index system of the new kinetic energy of Guangdong economy constructed by us. When the sampling fitness quantity of KMO is 0.576, it is considered that the factor analysis can be carried out because the subsequent model has a good effect. Bartlett test is used to test whether the covariance matrix of the data of the index system for measuring the new kinetic energy of Guangdong economy constructed by us is an identity matrix. When the significance level is 0.05, the null hypothesis that the covariance matrix is an identity matrix is rejected, so it is considered that there is a strong correlation between its variables. To sum up, the selected data of each index system for the measurement of the new kinetic energy of Guangdong economy have passed the KMO and Bartlett test, and the model can be used. The results are shown in Table 2.

Table 2: KMO and Bartlett Test

Name		Numerical Value
KMO Sampling Appropriateness Quantity		0.576
Bartlett's Test of sphericity	The approximate chi-square	311.064
	Degrees of freedom	78
	Statistical significance	0.000

3.3.2. Model Results

① Common Factor Variance

The common factor variance represents the information retention of each original index. For example, the initial value of total export in Table 2 is 1.000, and the extracted value is 0.928, indicating that 92.8% of the information of the index of total export is retained after dimension reduction. According to Table 2, each index system we selected to measure the new economic kinetic energy of Guangdong Province has a high degree of information retention after dimension reduction. The results are shown in Table 3.

Table 3: Common Factor Variance

Name	Initial	Extract
Total Export Volume	1.000	0.928
Total Import and Export Volume of Foreign-Invested Enterprises	1.000	0.860
Number of Foreign Contracted Engineering Contracts	1.000	0.860
Proportion of high-tech products export	1.000	0.837
Energy Consumption per unit GDP	1.000	0.986
per capita GDP	1.000	0.992
Number of patent acceptance	1.000	0.993
Proportion of Technical Contract Transaction in GDP	1.000	0.918
Number of Professional and Technical Personnel at the End of the Year in Public Economy Enterprises	1.000	0.859
Personnel Engaged in Scientific Research and Experimental Development Activities	1.000	0.967
GDP growth index	1.000	0.901
Proportion of Final Consumption in GDP	1.000	0.787
Added Value of Financial Industry	1.000	0.993

② Common Factor Extraction

Table 3 shows the new common factor information. After dimensionality reduction by factor analysis, we retain the common factors whose eigenvalues are greater than 1. In the model of this paper, we extracted the first three factors, and the cumulative contribution rate has reached 91.39%,

indicating that the screened common factors can reflect 91.39% (greater than 85%) of the original index system information, and the new factors after dimensionality reduction can better reflect the original index data, so the model has a good effect. In order to improve the interpretability of the selected common factors, we will rotate the above data. The rotated eigenvalues are 7.888, 2.184 and 1.809, respectively. The results are shown in Table 4. The eigenvalues before rotation are 8.322, 2.038 and 1.521, respectively. We find that the eigenvalues of factor 1 get smaller, the eigenvalues of factor 2 get larger, and the eigenvalues of factor 3 get larger.

Table 4: Total Variance Explanation

Composition	Initial Eigenvalue			Extract the sum of squared loads			Sum of squares of rotational loads		
	Total	Variance%	Cumulative %	Total	Variance%	Cumulative %	Total	Variance%	Cumulative %
1	8.322	64.016	64.016	8.322	64.016	64.016	7.888	60.678	60.678
2	2.038	15.676	79.691	2.038	15.676	79.691	2.184	16.797	77.475
3	1.521	11.699	91.390	1.521	11.699	91.39	1.809	13.915	91.390

③ **Common factor naming and calculation**

Table 4 shows the load values of the selected indicators for measuring the new economic kinetic energy of Guangdong Province under the three common factors. According to the table, We can know that the common factor 1 in the total value of exports, foreign investment enterprises import and export, the foreign contracting project contract number, new high-tech product export proportion, per unit of GDP energy consumption and GDP per capita, patent to accept the quantity, the technology contract volume of a share of GDP, public enterprise unit number at the end of the professional and technical personnel and economic indexes under the load value is bigger, So we name the common factor 1 as the external and technological factor. The load value of the common factor 2 is relatively large under the indicators of scientific research and experimental development activity personnel and GDP growth index, so we artificially named the common factor 2 as the innovation and development factor. The common factor 3 has a large load value under the indicators such as the proportion of final consumption in GDP and the added value of the financial industry, so we artificially named the common factor 3 as the economic vitality factor. The results are shown in Table 5.

Table 5: Component Matrix after Rotation

Name	Composition		
	1	2	3
Total Export Volume	0.975	0.079	0.191
Total Import and Export Volume of Foreign-Invested Enterprises	0.974	0.090	0.188
Number of Foreign Contracted Engineering Contracts	0.968	0.157	0.174
Proportion of high-tech products export	0.966	0.173	0.058
Energy Consumption per unit GDP	-0.93	-0.164	0.094
per capita GDP	0.927	0.009	0.012
Number of patent acceptance	0.910	-0.296	0.043
Proportion of Technical Contract Transaction in GDP	-0.897	-0.404	-0.131
Number of Professional and Technical Personnel at the End of the Year in Public Economy Enterprises	0.840	0.448	0.151
Personnel Engaged in Scientific Research and Experimental Development Activities	0.102	0.877	-0.285
GDP growth index	0.139	0.861	0.162
Proportion of Final Consumption in GDP	0.126	0.2	0.896
Added Value of Financial Industry	-0.101	0.293	-0.861

After Z-standardization of the data of the selected 13 index systems for measuring the new kinetic energy of Guangdong's economy, we calculated the common factor coefficient according to the output component score coefficient matrix, and obtained the expressions (2), (3) and (4) of the three common factor scores:

$$Y_1 = 0.074\gamma_1^* - 0.042\gamma_2^* - 0.076\gamma_3^* + 0.031\gamma_4^* - 0.089\gamma_5^* + 0.119\gamma_6^* + 0.125\gamma_7^*$$
$$+ 0.163\gamma_8^* + 0.140\gamma_9^* + 0.127\gamma_{10}^* - 0.135\gamma_{11}^* - 0.073\gamma_{12}^* + 0.126\gamma_{13}^* \tag{2}$$

$$Y_2 = 0.161\gamma_1^* + 0.425\gamma_2^* + 0.143\gamma_3^* + 0.111\gamma_4^* - 0.132\gamma_5^* + 0.001\gamma_6^* - 0.034\gamma_7^*$$
$$- 0.235\gamma_8^* - 0.081\gamma_9^* + 0.002\gamma_{10}^* + 0.008\gamma_{11}^* + 0.440\gamma_{12}^* - 0.039\gamma_{13}^* \tag{3}$$

$$Y_3 = 0.045\gamma_1^* - 0.130\gamma_2^* + 0.539\gamma_3^* - 0.482\gamma_4^* - 0.025\gamma_5^* + 0.031\gamma_6^* + 0.035\gamma_7^*$$
$$- 0.069\gamma_8^* - 0.071\gamma_9^* - 0.038\gamma_{10}^* + 0.127\gamma_{11}^* + 0.135\gamma_{12}^* + 0.036\gamma_{13}^* \tag{4}$$

Among them γ_i^* $(i = 1,2,\cdots,13)$ is the data of the index system for measuring the new kinetic energy of Guangdong economy after Z standardization.

According to the above results, the scores of the three common factors Y_1、Y_2、Y_3 are calculated respectively. Finally, the rotated eigenvalues in Table 3 are taken as the weights, and the total score of the index system is calculated by the total score formula (Equation 5).

$$Y = 0.664 * Y_1 + 0.184 * Y_2 + 0.153 * Y_3 \tag{5}$$

4. Empirical results analysis

Through calculation, we obtained the scores of three common factors, namely external and science and technology factor, innovation and development factor, and economic vitality factor from 2006 to 2020, and the total scores of the new economic kinetic energy of Guangdong Province from 2006 to 2020. The results are shown in Figure 1:
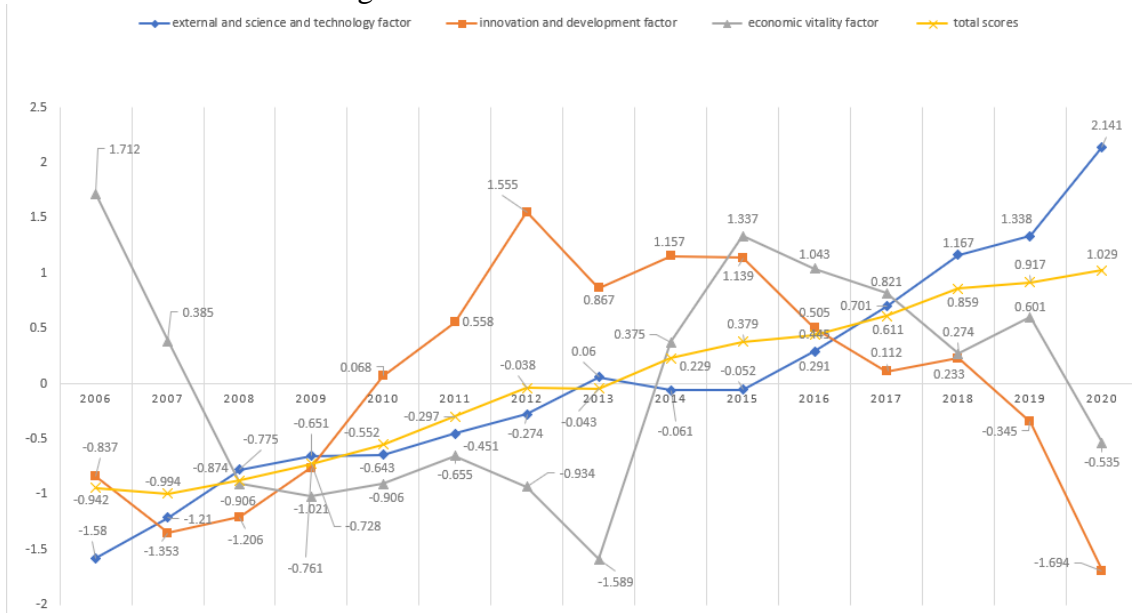

Figure 1: Scores of each common factor and total scores of new driving forces of Guangdong economy

The development trend of the total score of Guangdong Province increased year by year, with the highest score of 1.029 and the lowest score of -0.942. The growth first increased and then decreased. From the above table, we can see that the change trend of external and science and technology factors is similar to the development trend of the total score of Guangdong Province. This is because the weight of external and science and technology factors is the largest, so the level of external and science and technology factors directly affects the level of the total score. In 2006, the party central committee and the State Council issued "on the implementation of the decision of the plan for enhance

independent innovation capability of science and technology" the innovation landmark documents, according to the documents of Guangdong province the guidance of deepening the reform of science and technology system, forming motivation of independent innovation policy system, boost their own innovation and development, promote the rapid growth of innovation and the development factor, As a result, the growth rate of the total score of Guangdong Province has been significantly increased. At the same time, the central government lowered its economic growth target for the first time in 2012, which prompted Guangdong to lower its economic growth target as well. As a result, the growth rate of Guangdong's total score dropped significantly between 2012 and 2013.

The development trend of external and scientific and technological factors generally showed an increasing trend, with the highest score of 2.141 and the lowest score of-1.580. It can be seen from the rotated component matrix in Table 4 that the external and scientific and technological factors are mainly affected by the total export volume, the total import and export volume of foreign-invested enterprises, Number of projects contracted abroad, proportion of high-tech products exported, energy consumption per unit GDP, per capita GDP, patent acceptance volume, the proportion of technical contract transaction in GDP and the number of professional and technical personnel at the end of the year in public economy enterprises. In 2001, China joined the WTO, China's foreign trade rapid development and Guangdong province is close to the sea, foreign trade development has more advantages, so 2006-2022 the total export volume of Guangdong Province increased year by year, but the increase rate decreased from 2013 to 2015, so the score of external and science and technology factor was scored. In 2012, Guangdong lowered its economic growth target, total import and export volume of foreign-invested enterprises, high and new technology. The proportion of product export and the number of professional and technical personnel in public economy enterprises at the end of the year all decreased to varying degrees, so the external and high technology.

The growth rate of scientific and technological factors decreased significantly from 2013 to 2015.The development trend of the innovation and development factor generally increased first and then decreased, with the highest score of 1.555 and the lowest score of -1.694. According to the rotated component matrix in Table 4, innovation and development factors are mainly affected by scientific research and experimental development activities, GDP growth index two index systems. Guangdong province according to the "On Implementation" issued by the CPC Central Committee and The State Council in 2006.The outline of science and technology Planning to enhance the ability of independent innovation decision, strengthen innovation, innovation to drive the development of science and technology, therefore, From 2006 to 2007, the number of personnel engaged in scientific research and experimental development in Guangdong Province decreased significantly while the GDP growth index was relatively stable. Inererore, the factors of innovation and development showed a decline during 2006-2007. Scientific research and development activity in 2007-2012. The growth rate of innovation and development factors increased significantly from 2006 to 2012. In 2012, Guangdong lowered its economic growth target, so the GDP growth index has been in a state of decline since 2012, so innovation and the growth rate of the development factor decreased from 2012 to 2020; At the same time, due to the influence of the international environment, the GDP growth of Guangdong Province was slow and various communication activities with other countries and regions were reduced in 2020, so the growth rate of innovation and development factors decreased sharply.

The development trend of the factor of economic vitality showed a general trend of first decreasing, then increasing and then decreasing, with the highest score of 1.712 and the lowest score of-1.589. According to the rotated component matrix in Table 4, the factor of economic vitality is mainly affected by two index systems: the proportion of final consumption in GDP and the added value of the financial industry. From 2007 to 2009, when the world was in financial crisis, many residents in Guangdong Province lost their jobs and their consumption decreased, so the proportion of final consumption in GDP decreased significantly. Meanwhile, due to the impact of the financial crisis,

the financial industry in Guangdong Province suffered setbacks, so the economic vitality factor showed a declining state from 2006 to 2008. In 2012 the State Council approved the construction of the pearl river delta of guangdong province financial innovation comprehensive experimental zone overall plan "at the same time, the China Securities Regulatory Commission issued "on the implementation of the" state council on encouraging, and guiding the healthy development of private investment in several opinions>work main point of notice, thanks to the two policy, finance industry rapid development in guangdong province, therefore, The added value of the financial industry showed a significant increase from 2013 to 2015, so the growth rate of the economic vitality factor increased significantly from 2013 to 2015. In 2020, due to the influence of the international environment, many places in Guangdong Province implemented control, residents reduced going out, and residents' consumption decreased significantly, so the growth rate of the economic vitality factor decreased sharply.

5. Research conclusions and policy recommendations

In this paper, an index system for measuring the new driving forces of economic development in Guangdong Province is constructed from four dimensions: openness level, development effectiveness, scientific and technological innovation, and economic vitality. By using factor analysis method, the scores of the new driving forces of economic development in Guangdong Province from 2006 to 2020 are scientifically evaluated, and conclusions are drawn. The results show that although the new economic growth drivers of Guangdong Province continue to rise and the growth rate is obvious, they are still at a low level. Among the three common factors involved in the study, the external and science and technology factors have study, the external and science and technology factors have a greater impact on the total score of Guangdong's new economic driving forces, followed by innovation and development factors, and the economic vitality factor is the least. At the same time, the scores of innovation and development factor and economic vitality factor have continued to decline since 2015, and there is still a large room for improvement.

Based on the above conclusions, relevant policy recommendations are put forward: (1) to strengthen scientific and technological innovation and stimulate innovation momentum. Innovation is one of the main forces driving the growth of the new economic growth drivers in Guangdong Province. Relying on the province's strong economic strength, we will increase investment in personnel training expenses, build a deep integration system of industry, universities and research, provide financial support for innovative enterprises, and stimulate the innovation vitality of the market. (2) We will continue to expand and deepen opening-up. The level of opening-up is one of the two biggest driving forces behind the new growth drivers of Guangdong's economy. Taking advantage of the province's proximity to Southeast Asia, Hong Kong and Macao, as well as its advantages as a shipping hub, it will reform its management methods to enhance investment facilitation and cross-border trade. Policy and financial support will be given to relevant multinational enterprises in accordance with the "one project, one discussion" approach. (3) We will improve the industrial structure. The optimization of the industrial structure is an important link to enhance the new growth drivers of Guangdong Province. We will pay attention to the development of modern finance, and encourage and guide the development of high-techenterprises and strategic emerging industries. We will promote horizontal and vertical optimization of the industrial structure.

References

[1] Li Chenggang, Wan Jun. Analysis on the Influencing factorsof the new driving force of economic development in Guizhou Province [J]. Journal of Guizhou Normal University (Social Sciences Edition), 5.], 2021, (01): 93-101.
[2] Wu Jing. Evaluation on the conversion of old and newdrivers of economic development in the new era: A case study

of Qingdao City. Areal research and development, 2019, 38 (5): 41 + 62-44.

[3] Zhang T, Qin Y, Ai X. Research on the Measurement of the Safe Scale of Bonds in Central China[J]. The Chinese Economy, 2020.

[4] Li Jinchang, Hong Jian. Some Problems on statistical research of new economy and new driving force [J]. Modern Economic Discussion, 2020, (04): 1-10.

[5] He Qiang. Research on the statistical measurement and improvement path of the new growth drivers of China's rural economy [J]. Research World, 2019, (01): 4-10.

[6] Liu Shuwen, Yang Shenggang, Yang Yang. Measurement and evaluation of the transformation of old and new driving forces in China's rural economic development [J]. Statistics and decision, 2021, 37(08): 73-76.

[7] Fang Dachun, Pei Mengdi. Measurement and improvement of the conversion level of old and new kinetic energy in Anhui Province [J]. Journal of Hunan University of Finance and Economics, 2021, 37 (2): 13-23.