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High-Quality Regional Economic Development Paths in China—QCA-Based Linkage Effect

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Abstract: High-quality economic development is an organic whole, involving macro, meso, and micro factors, therefore it is necessary to explore the mechanism for quality development in the construction of a modern economic system. Following the new development concept, this paper constructs a measurement system for the economic development quality of 30 provinces and cities in China by using the entropy weight and TOPSIS method. In addition, the linkage effects of factors on high-quality economic development were analyzed by using the fuzzy qualitative comparative analysis (fsQCA) method. The results show that among factors contributing to diversified forms of the high-quality regional economy, the following three stand out: scientific and technological innovation, marketization, and infrastructure construction. On this basis, three paths were proposed for quality economic development, and they are: the innovation- and market-driven mode, the synergy mode of market and innovation, and the market-led conversion mode.

Keywords: high-quality economic development; multiple paths; fsQCA; entropy-TOPSIS

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1. Introduction

High-quality economic development is a fuller and more balanced development in the context of the new era of socialism with Chinese characteristics and in response to changes in the main social contradictions, which requires a dynamic balance between supply and demand at a higher level. According to data from the National Bureau of Statistics, the total economic volume of China leaped to the second place in the world for the first time in 2010 and has remained there ever since, with social productivity increased significantly, but the unbalanced and inadequate development has not yet been effectively resolved. As a response, President Xi Jinping put forward the new development concept of innovation, coordination, green, openness, and sharing at the Fifth Plenary Session of the 18th Party Central Committee in 2015. In 2017, "high-quality development" was proposed in the report of the 19th Party Congress for the first time, indicating that China's economic development has shifted from high-speed growth to high-quality development. By looking at the modernization development of countries around the world, growth momentum change, quality, and efficiency improvement are key for balanced, sustainable, and healthy economic and social development [1]. If China is to grow rapidly in spite of the great changes in the world economy, it has to take the new development path driven by science and technology innovation; also, it has to continuously optimize its economic structure for high-quality development of efficiency, fairness, green, and sustainability. Compared to the use of well-established human development indicators or world development indicators to measure the level of economic development, it is clear that measuring the quality of China's regional economic development is a more complex process, because China's high-quality economic development faces a number of challenges and involves the integration of multi-levels factors, which requires a new targeted system of factor measurement indicators. At the same time, the new development concept is a refinement of the existing

measurement system, focusing on the search and choice of development paths, which has certain implications for other countries with similar systems and development pursuits. Therefore, this paper proceeds as following the mechanisms for effectively improving economic development quality, by identifying the concurrent causality between factors, and proposes the optimization paths with different combinations of factors, so as to build China into a great modern socialist country. In light of existing studies, multiple feasible solutions for high-quality economic development are sought by selecting research variables for the fsQCA-based analysis, and exploring the mechanisms of action between different variables.

2. Literature Review

High-quality development is a new expression rooted in the reality of China, i.e., China's economy and society is moving towards a new stage. Relevant studies have been carried out around the theoretical interpretation, the measurement, and the factors analysis of high-quality economic development. The existing research holds that high-quality development is a comprehensive evaluation system to measure the economy, including effective supply, fairness, and the modernity and coordination with the construction of an ecological civilization [2]. High-quality economic development is manifested in the quality, efficiency, and stability of the supply system [3]; it is dynamic and evolving, while meeting people's growing needs [4]. Researchers often make the indicator systems key in measuring the achievements of economic development. For example, Perera et al. (2013) used the system generalized moment method (GMM) based on the constructed indicator system to study the impact of economic growth and institutional quality on poverty and income inequality in developing countries [5]. Some studies have also examined the impact of ICT on economic growth in developing, emerging, and developed countries based on indicators in existing databases [6]. As the expression of high-quality economic development was born in the special development background of China, the measurement and evaluation indicator system is conducted domestically. High-quality economic development has to take into account the development process as well as the development results, and the measurement system can be constructed by clarifying its internal mechanism [7]. Or from the new development concept, the evaluation system is constructed and empirically measured [8]. In a nutshell, influencing factors in high-quality economic development can be summarized into three categories: first, factor endowment including the stock of human capital [9] and the level of financial development [10]; second, institutional quality including the property right system [11], environmental regulation [12], and taxation structure [13]; and third, scientific and technological innovation [14] as a growth momentum.

As high-quality economic development is an organic whole, it is necessary to clarify the linkage effects of multiple factors. However, there are no studies conducted on the "compounding effect" of all factors, only applying the regression method to explore the independent effect of single factor. In the real world, results are often caused by the joint action of many factors, which is a non-linear causality. In light of this, this paper takes the high-quality economic development measured by the entropy-TOPSIS method as the outcome variable, selects eight conditional variables from the three categories, and uses the fsQCA method for configuration analysis, in order to explore the interaction and syntagmatic relationship between different variables, find applicable equivalent paths for high-quality economic development in different regions.

3. Research Design

3.1. Outcome Variables

In this paper, the high-quality economic development level of 30 provinces/cities measured by the entropy-TOPSIS method is taken as the outcome variable. High-quality economic development is a comprehensive evaluation system, so it has to be measured by composite indicators. Thus, based on the new development concept and in line with the research by Wei [7] and Wang [15], a new evaluation system covering ten indicators in five dimensions is constructed to measure the high-quality economic development and

the correlation with these indicators. In innovative development, the proportion of sales revenue from new high-tech products and technology market turnover to regional GDP are selected as measurement indicators; in coordinated development, the urbanization rate and the proportion of per capita GDP to the national total are selected as measurement indicators; in green development, the non-hazardous treatment rate of domestic wastes and forest coverage rate are selected as measurement indicators; in open development, the number of foreign-invested enterprises and the proportion of total import and export to regional GDP are selected as the measurement indicators; in shared development, the per capita disposable income and per capita education expenditure are selected as measurement indicators, as shown in Table 1.

Table 1. Measurement indicators for high-quality economic development.

Dimensions	Measurement Indicators	Indicator Direction
Innovation	Sales revenue of new products in high-tech industries/GDP	+
	Turnover in technology market/GDP	+
Coordination	Urbanization rate (urban-rural structure)	+
	Per capita GDP of each province/per capita GDP of the whole country (regional structure)	+
Green	Harmless treatment rate of domestic wastes	+
	Forest coverage	+
Open	Number of foreign-invested enterprises	+
	Total imports and exports/GDP	+
Sharing	Per capita disposable income (RMB/person)	+
	Per capita education expenditure (RMB/person)	+

Note: + indicates a positive correlation between the measurement indicators and high-quality economic development.

3.2. Conditional Variables

According to the existing research, the main influencing factors on high-quality economic development include factor endowment, institutional quality, and growth momentum [16–18], hence the conditional variable system was constructed. Since factor endowment can be used to characterize the amount of manpower, capital, material, and information needed to promote high-quality economic development in a region, talent quality, capital ownership, infrastructure completeness, and information resource stock are selected as measurement indicators. The system quality is an important factor in promoting regional high-quality development, which generally includes economic, political, and legal systems, an open economic system in particular [19]. Therefore, the level of marketization and the optimization of the industrial structure are selected as proxy indicators to measure the quality of regional institutions. As for the transformation of growth momentum, new technologies and industries, such as scientific and technological innovation ability and digital development, are selected as the measurement indicators. The detailed conditional variable system is shown in Table 2.

(1) Quality of talents. Human capital has been playing an important role in economic development since it was first put forward in the 1950s [20]. Generally speaking, the higher the average years of education, the higher the talent quality and human capital level for the sustained and healthy development of the regional economy. Hence, the per capita years of education is selected as an indicator.

(2) Capital ownership. In recent years, many studies have proved that the ownership of regional financial capital plays an important role in every stage of economic development [21]. Capital ownership also boosts high-quality economic development generally and regionally [10]. At present, researchers often use the quotient of the added value ratio of the financial industry in a certain period of time to the GDP of a region divided by that in the whole country to the national GPD in the same period as an indicator to measure the ownership of regional financial capital. Hence, this indicator is used in this paper.

Table 2. Factors influencing high-quality economic development.

Category	Element	Measurement Indicators	Indicator Direction
Factor endowment	Talent quality	Average years of education	+
	Financial capital ownership	Ratio of financial sector added value to regional GDP/Ratio of national financial sector added value to GDP	+
	Completeness of infrastructure	Operating miles per square kilometer	+
Institutional quality	Stock of information resources	Number of Internet access ports	+
	Level of marketization	Financial sector value added/GDP	+
	Optimization of the industrial structure	Output value of tertiary industry/output value of secondary industry	+
Growth momentum	Development of digital economy	E-commerce sales (100 million)	+
	Scientific and technological innovation ability	Internal expenditure of regional RandD expenditure/GDP	+

Note: + indicates a positive correlation between the measurement indicators and high-quality economic development.

(3) Completeness of infrastructure. Transportation infrastructure, as the leading social capital, plays an important part in regional economic growth [22], as well as high-quality development, which is proven in research [23]. Traffic density can measure the completeness of regional traffic infrastructure. Thus, the sum of the mileage of water, railway, and road transportation by area is used as an indicator.

(4) Stock of information resources. The development of the Internet and computer makes it fast to disseminate and create information. People have gradually stepped into the era of big data and digital information, where data information plays an important role in economic and social development [24]. Big data, based on data flow, can effectively integrate technical, material, and financial flow, and continuously improve all factor productivity and promote high-quality economic development [25]. To measure the stock of regional information resources, the number of Internet access ports is selected as an indicator.

(5) Level of marketization. As China's economy transitions from high-speed growth to high-quality development, it is key to allocate elements based on the market [11]. Therefore, it is necessary to improve the market-based allocation of elements, increase efficiency, and solve misallocations. At present, the marketization index of Fan Gang et al. is used as the measurement indicator; since the latest marketization process index has not been released yet, the proportion of the added value of financial industry in regional GDP is selected as a proxy indicator.

(6) Advanced industrial structure. The influence of industrial structure adjustment on economic development has always been a hot issue in the academic circle. According to existing research, the upgrading of industrial structure can improve all factor productivity and promote the high-quality regional economic development [26]. Therefore, this article selects the output value ratio of the tertiary industry to the output value of the secondary industry to measure the level of industrial structure upgrading, as well as regional industrial structure adjustment.

(7) Development of digital economy. The digital economy, as a new economic form with the development of information technology, has been widely recognized for its importance in sustained and healthy economic development, as it can improve the operation efficiency, optimize the economic structure [27], and stimulate entrepreneurial activity, thus powering high-quality economic development [28]. Therefore, e-commerce sales are selected as an indicator to measure the development level of the regional digital economy.

(8) Scientific and technological innovation ability. Schumpeter has deeply realized the important role of innovation in economic growth in his innovation theory [29]. Since then, scholars at home and abroad have deepened their understanding of its role in economic growth, and it is generally believed that scientific and technological innovation is an

important source of power to promote economic growth [30]. In the era of knowledge economy, scientific and technological innovation is more of a means to promote high-quality economic development for China [31]. To avoid overlap, the ratio of regional R&D expenditure to GDP is selected as an indicator to measure regional scientific and technological innovation ability from the perspective of input.

4. Research Methods and Data Sources

4.1. Research Methods

(1) Entropy-TOPSIS method. In this paper, it is used to measure the comprehensive level of high-quality economic development (in 30 provinces and cities) for its objectivity, effectiveness, and rationality in results. The entropy weight method can avoid the deviation caused by human factors to a great extent, as it is to give different weights to the indicator by the variation degree information of the indicator itself. The TOPSIS method quantifies the ranking by comparing the distances between the best and worst schemes of each evaluation object according to the weights given. The method is as follows.

Step 1, the range method is adopted to standardize the indicator X_{ij} in order to eliminate the influence of dimensional inconsistency:

$$Y_{ij} = \frac{X_{ij} - \min(X_{ij})}{\max(X_{ij}) - \min(X_{ij})},\ X_{ij} \text{ as a positive indicator} \tag{1}$$

where i and j represent provinces and indicators, respectively, $\max(X_{ij})$ and $\min(X_{ij})$ are the maximum and minimum values of X_{ij}, i.e., the maximum value of the indicator in the province and the minimum value of the indicator in the province.

Step 2, calculate the indicator weight. The information entropy E_j of high-quality economic development indicators of each province is calculated first, where n represents the number of provinces:

$$E_j = \ln \frac{1}{n} \sum_{i=1}^{n} \left[\left(\frac{Y_{ij}}{\sum_{i=1}^{n} Y_{ij}} \right) \ln \left(\frac{Y_{ij}}{\sum_{i=1}^{n} Y_{ij}} \right) \right] \tag{2}$$

Next, calculate the indicator weight W_j:

$$W_j = \frac{(1 - E_j)}{\sum_{j=1}^{m} (1 - E_j)} \tag{3}$$

Step 3, construct the weighting matrix R of the indicators:

$$R = (r_{ij})_{n \times m}, r_{ij} = W_j \times Y_{ij} \tag{4}$$

Step 4, the optimal scheme Q_j^+ and the worst scheme Q_j^- can be determined according to the weighting matrix:

$$\begin{aligned} Q_j^+ &= (\max r_{i1}, \max r_{i2}, \cdots, \max r_{im}) \\ Q_j^- &= (\min r_{i1}, \min r_{i2}, \cdots, \min r_{im}) \end{aligned} \tag{5}$$

Then, calculate the Euclidean distances d_i^+ and d_i^- between Q_j^+ and Q_j^-:

$$\begin{aligned} d_i^+ &= \sqrt{\sum_{j=1}^{m} \left(Q_j^+ - r_{ij}\right)^2} \\ d_i^- &= \sqrt{\sum_{j=1}^{m} \left(Q_j^- - r_{ij}\right)^2} \end{aligned} \tag{6}$$

Step 5, calculate the proximity C_i of each measurement scheme and the ideal scheme:

$$C_i = \frac{d_i^-}{d_i^+ + d_i^-} \tag{7}$$

(2) Fuzzy qualitative comparative analysis. Since a single traditional qualitative or quantitative method is insufficient for the complex relationships generated in the results, a qualitative comparative analysis (QCA) that integrates the advantages of the two methods is used. QCA is divided into clear set qualitative comparative analysis (csQCA), multi-valued set qualitative comparative analysis (mvQCA), and fuzzy qualitative comparative analysis (fsQCA). Besides, it regards cases as conditional configurations, replaces independent variables with conditional configurations, replaces net benefits with configuration ideas, and replaces correlation with set relationships, which makes sociological research move from linear analysis to set analysis [32]. Mainly used to deal with the outcome variable not a binary variable of yes and no, it can transform the outcome variable and the conditional variable into a fuzzy membership relationship between 0 and 1 [33,34]. As the conditional variables and outcome variables are not classified as binary variables, fsQCA will be more adaptable in analyzing the relationship between the conditional variables and outcome variables in this study.

4.2. Data Sources

In this paper, 30 provinces and cities in China in 2019 (excluding Tibet, Hong Kong, Macao, and Taiwan due to the lack of relevant data) are selected as the research samples. The data used were all from the Statistical Yearbook of China (2020) and the Statistical Yearbook of China Science and Technology (2020), in which the number of years of education per capita was calculated from the sum of the ratio of the level of primary, junior high, senior high, junior high, and postgraduate education above to the population at the age of 6 and the number of years of education corresponding to each level; the completeness of infrastructure was calculated by dividing the sum of the mileage of regional water, railway, and road transportation by the regional land area; and the rest of the indicators were obtained according to the established indicator system.

5. Empirical Analysis and Discussion

5.1. Measurement of High-Quality Economic Development

The 30 research samples are measured based on the established indicator system. According to the results, the top three scorers are Guangdong, Beijing, and Shanghai, at 0.604, 0.582, and 0.543, respectively; and the last three are Gansu, Shanxi, and Xinjiang, at 0.087, 0.099, and 0.106, respectively; the average score is 0.219, a big gap in between. The specific calculation results are listed in Table 3 based on the ranking of comprehensive scores.

Table 3. Comprehensive scores of high-quality economic development by province.

Provinces/Cities	Comprehensive Scores	Provinces/Cities	Comprehensive Scores
Guangdong	0.604	Guangxi	0.158
Beijing	0.582	Hunan	0.157
Shanghai	0.543	Sichuan	0.154
Zhejiang	0.366	Yunnan	0.141
Jiangsu	0.364	Anhui	0.141
Tianjin	0.355	Inner Mongolia	0.138
Fujian	0.282	Heilongjiang	0.136
Shaanxi	0.213	Guizhou	0.129
Shandong	0.204	Qinghai	0.122
Chongqing	0.201	Ningxia	0.119
Liaoning	0.2	Henan	0.119
Jiangxi	0.195	Hebei	0.113
Hubei	0.187	Xinjiang	0.106
Hainan	0.181	Shanxi	0.099
Jilin	0.159	Gansu	0.087

5.2. Data Calibration and Conversion

Data calibration and conversion is an important premise of fsQCA that can convert conditional variables into set relationships for software identification and operation. At present, the most commonly used calibration methods are direct calibration and direct assignment. The direct calibration method calibrates the original data based on three qualitative anchor points: 1 (full membership), 0.5 (intersection), and 0 (full non membership), while the direct assignment method directly assigns values based on theories and research scenarios [35]. With different evaluation methods and standards adopted, there is no consensus on the standard of higher economic development quality. Hence, the median of the comprehensive score exceeding the level of economic high-quality development is seen as higher quality, and the direct calibration method is used to calibrate each variable as shown in Table 4.

Table 4. Calibration points and descriptive statistical analysis of variables.

Set	Fuzzy Calibration Points			Descriptive Statistical Analysis			
	Full Membership	Intersection	Non-Membership	Mean	Standard Deviation	Max.	Min.
Financial capital ownership	1.036	0.899	0.807	1.019	0.404	2.366	0.631
Optimization index of the Industrial structure	1.527	1.351	1.197	1.564	0.800	5.169	0.934
Scientific and technological innovation ability	0.021	0.017	0.010	0.019	0.012	0.063	0.005
Development of digital economy	5418	3097	1269	5639	7274	30,168	211
Quality of talents	9.580	9.276	8.793	9.373	0.943	12.782	7.903
Level of marketization	0.081	0.070	0.063	0.080	0.032	0.185	0.049
Stock of information resources	3697	2320	1742	3046	2076	8538	382
Completeness of infrastructure	1.498	1.104	0.599	1.089	0.594	2.451	0.120
Comprehensive score of high-quality economic development	0.230	0.159	0.127	0.219	0.142	0.604	0.087

5.3. Necessity Analysis

The necessity analysis of a single condition is the first step in fsQCA to determine whether the condition is necessary for the occurrence of a result. Two indicators can be

obtained during the necessity analysis, consistency and coverage. Generally, this condition is considered necessary for the outcome when the consistency of the individual conditions is greater than 0.9. In this paper, the analysis shows that the consistency of a single condition is less than 0.9, which does not constitute a barrier to the economic development quality in all antecedent condition variables. The specific measurement results are ranked according to the consistency from high to low, as shown in Table 5.

Table 5. Necessity analysis of variables.

Conditional Variables	Consistency	Coverage
Scientific and technological innovation ability	0.820	0.810
Scientific and technological innovation ability	0.268	0.284
Development of digital economy	0.770	0.780
Development of digital economy	0.337	0.347
Quality of talents	0.721	0.706
Quality of talents	0.376	0.402
Completeness of infrastructure	0.720	0.737
Completeness of infrastructure	0.372	0.380
Stock of information resources	0.665	0.675
Stock of information resources	0.434	0.447
Financial capital ownership	0.654	0.657
Financial capital ownership	0.464	0.482
Level of marketization	0.653	0.657
Level of marketization	0.464	0.482
Optimization index of the Industrial structure	0.549	0.560
Optimization index of the Industrial structure	0.549	0.561

5.4. Configuration Analysis

In this paper, the fsQCA3.0 software is used to analyze the combined effect of each condition factor on the high-quality economic development. In order to ensure the stringency of the conclusions, relevant parameters need to be set based on theories and studies. The original consistency threshold is set at 0.75, the PRI consistency threshold at 0.7, and the case frequency threshold at 1 at the suggestion of Wagemann [36]. fsQCA will give three solutions, i.e., complex, simple, and intermediate solutions. Generally, the intermediate and the simple solutions are nested and compared to identify the conditions, i.e., the solution appearing in both the simple solution and the intermediate solution is the core condition, and the solution appearing only in the intermediate solution is the edge condition. The analysis results are shown in Table 6, where there are four paths, representing different combinations of conditions, for high-quality economic development; and two paths can be called second-order equivalent configurations when their core conditions are consistent [37]. In the following paths, 1a and 1b are second-order equivalent configurations.

(1) Innovation- and market-driven mode. Paths 1a and 1b can be summarized as the same second-order configurations, and are adopted by the provinces of this mode to promote high-quality economic development. Configurations 1a and 1b focus on high-tech innovation ability, high level of marketization, and infrastructure completeness as the core conditions, which can effectively improve the quality of economic development, complementary to high ownership of financial capital, high level of digital economic development, and high quality of talents. In this paper, it was found that configurations 1a and 1b showed obvious innovation-and market-driven characteristics in economic development quality. Supported by sound infrastructure, Tianjin, Jiangsu, Zhejiang, and other provinces rely on innovation and market to improve the quality of economic development. According to the previous estimation of the high-quality economic development level of each province, Tianjin, Jiangsu, and Zhejiang all perform well with comprehensive scores at 0.355, 0.364, and 0.366, respectively, far above the national average. Judged from the scientific and technological innovation ability, Tianjin, Jiangsu, and Zhejiang all have better innovation capability in the country. For example, Zhejiang, according to relevant statistics, ranked

the sixth in R&D funding intensity in the country by the end of 2019, and the third in the number of patents granted. Judging from the indicators that reflect the transformation of scientific and technological innovation achievements, Zhejiang's proportion of sales revenue from hi-tech new products to GDP is also at the top in China. Therefore, both configuration results and relevant statistical data showed that innovation capability is the core condition to promote high-quality economic development in Tianjin, Jiangsu, Zhejiang, and other provinces. Configurations 1a and 1b also indicate that such high-quality economic development cannot be achieved without the role of the market. According to relevant statistics, the marketization of Tianjin, Jiangsu, Zhejiang, and other provinces are at the top in the country, which means that they rely on a relatively strong marketization level to reduce transaction costs and improve the efficiency of factor allocation, thus promoting the high-quality development of the regional economy. In recent years, the provinces represented by Zhejiang have launched a series of policy measures to promote high-quality economic development. For example, the "mass entrepreneurship and innovation" policy effectively stimulated the innovation and entrepreneurial vitality of market players. Hence, these provinces fit the typical characteristics of the innovation- and market-driven mode.

Table 6. Paths for high-quality economic development.

Conditional Variables	Path 1a	Path 1b	Path 3	Path 4
Financial capital ownership	•	•	•	•
Optimization index of the industrial structure	-	•	•	•
Scientific and technological innovation ability	●	●	●	⊗
Development of digital economy	•	•	•	⊗
Quality of talents	•	•	•	•
Level of marketization	●	●	●	●
Stock of information resources	•	-	•	⊗
Completeness of infrastructure	●	●	-	●
Original coverage	0.237	0.261	0.153	0.058
Unique coverage	0.112	0.135	0.028	0.037
Overall consistency	0.94			
Overall coverage	0.44			

Note: • indicates the existence of edge conditions; ● indicates the existence of core conditions; ⊗ indicates missing of edge condition; ⊗ indicates missing of core condition; - indicates a fuzzy state, indicating that a condition may or may not exist.

(2) The synergy mode of market and innovation. Configuration 3 takes high-tech innovation ability and the high marketization level as the core conditions, which are complementary to edge conditions, such as high financial capital ownership, high industrial optimization index, high level of digital economic development, high quality of talents, and high stock of information resources. Configuration 3 shows obvious synergy, in market and innovation-driven, high-quality economic development, based on factor endowment and institutional quality, such as developed digital economy, rich information resources, high-quality talents, financial capital, and optimized industrial structure. Guangdong is a representative that relies on diversified development to improve the quality of the economy driven by the market and innovation. According to the estimated high-quality economic development level of each province, Guangdong ranks first in the country, with a comprehensive score at 0.604. Guangdong ranks first in the country in innovation ability and marketization, factor endowment, and institutional quality, such as digital economic development and information resources, according to relevant data. Different from Configurations 1a and 1b, provinces in this mode do not have many fuzzy scenarios and show relatively comprehensive development. However, Configuration 3 also shows that the conditional variable of infrastructure completeness is in a fuzzy state, so provinces like Guangdong can further bolster the high-quality economic development by improving infrastructure construction. In recent years, Guangdong has also attached importance to the construction of new infrastructure. For example, the Three-year Implementation Plan

for Promoting New Infrastructure Construction in Guangdong Province (2020–2022) put in place can facilitate the high-quality economic and social development. However, it should be pointed out that attention should also be paid to the old infrastructure, because more often "new infrastructure" is a system built on traditional infrastructure [38]. Provinces represented by Guangdong fall into the synergy model of market and innovation.

(3) The market-led conversion mode. Configuration 4 takes high marketization level, high infrastructure completeness, and non-high scientific and technological innovation ability as the core conditions, which are complementary to edge conditions, such as high ownership of financial capital, high industrial optimization index, high quality of talents, non-high level of digital economy development, and non-high information storage capacity, which improve the quality of economic development. Configuration 4 shows that the improvement of economic development quality is the result of the conversion of growth momentum and the adjustment of industrial structure, indicating that provinces with insufficient scientific and technological innovation ability and low level of digital economic development can choose this path to improve economic development quality under an open market economy system and sound infrastructure. Hainan is a representative that mainly relies on the adjustment and upgrading of the industrial structure to promote high-quality economic development. Relevant statistics show that Hainan performs well, with an industrial structure optimization index of 2.84, higher than Shanghai's 2.69, the second in the country after Beijing. To some extent, this reflects that the adjustment of industrial structure and industrial transformation are important to promote high-quality economic development in Hainan. At the same time, Configuration 4 also shows that such provinces still fall behind the national ability, thus more investment input is needed. Although these provinces are weak in innovation ability, they can introduce a large number of talents in a short time, supported by their perfect infrastructure and open market economic system, thus providing momentum forhigh-quality regional development. Relevant statistics show that by the end of 2019, Hainan was in the top 50% of the country for its talent quality and marketization level. Therefore, the transformation characteristics of these provinces are reflected in the industrial transformation, as well as the transformation of economic growth momentum from factor-driven to innovation-driven, which is also consistent with its structure optimization and upgrading measures and talent introduction policies in recent years. Therefore, the provinces represented by Hainan are in the transformation market-driven mode.

5.5. Robustness Test

Robustness test is a key step in the fsQCA that guarantees the validity of the analysis results. There are four common methods for robustness testing, namely, raising the threshold of case consistency, improving the consistency of PRI, adding or deleting cases, and adding other conditions [35]. Adding or deleting cases is selected randomly. Moreover, since no new cases could be added into the research subjects, 10% of the cases are randomly deleted for the robustness test. The results showed that the configuration is consistent with the original one, except for slight changes in the coverage and consistency. Evidently, the analysis results are of good robustness. The configurations generated by the robustness test are shown in Table 7.

Table 7. Configuration generated by the robustness test.

Conditional Variables	Path 1a	Path 1b	Path 3	Path 4
Financial capital ownership	•	•	•	•
Optimization index of the Industrial structure	-	•	•	•
Scientific and technological innovation ability	●	●	●	⊗
Development of digital economy	•	•	•	⊗
Quality of talents	•	•	•	•
Level of marketization	●	●	●	●
Stock of information resources	•	-	•	⊗
Completeness of infrastructure	●	●	-	●
Original coverage	0.252	0.277	0.162	0.06
Unique coverage	0.12	0.144	0.03	0.039
Overall consistency	0.94			
Overall coverage	0.46			

Note: • indicates the existence of edge conditions; ● indicates the existence of core conditions; ⊗ indicates missing of edge condition; ⊗ indicates missing of core condition; - indicates a fuzzy state, indicating that a condition may or may not exist.

6. Conclusions and Enlightenment

As high-quality economic development is an organic whole, it is necessary to clarify the joint effects of multiple factors. In this paper, with the measured high-quality development level of the economy as the outcome variable, eight antecedent variables are selected from the three dimensions of factor endowment, institutional quality, and growth momentum, and the configuration analysis is conducted by using the fsQCA method. The following conclusions are drawn: (1) the linkage effect and interaction of various conditional elements, rather than single factors, play an important role in high-quality economic development. Therefore, while transforming the growth momentum and optimizing the economic structure, it is necessary to pay attention to factors coordination and linkage for high-quality economic development. (2) Scientific and technological innovation, marketization, and infrastructure construction play a universal role in promoting high-quality economic development. Configuration analysis shows that almost all paths include factors, such as technological innovation, marketization, infrastructure construction, and others. For example, scientific and technological innovation has always been an important driving force for high-quality economic development; marketization can promote the rational allocation of factor resources to improve all factor productivity; and the improvement of infrastructure, especially the construction of "new infrastructure", also supports high-quality economic development. Therefore, the appropriate and effective use of these three elements will get twice the result with half the effort. (3) There are three modes that can effectively improve the quality of economic development, namely the innovation-and market-driven mode, the joint mode of market and innovation, and the market-driven conversion mode. The three modes, with coverage of over 40%, are present in most cases of high-quality economic development. Specifically, the innovation-and market-driven mode shows with the importance of perfect infrastructure; the synergy model in market and innovation shows the importance of factor endowment and institutional quality in quality economic development; and the market-led conversion mode shows that with an open market economy system and sound infrastructure, the quality of economic development can be improved by the adjustment of industrial structure and the conversion of growth momentum.

In order to seize opportunities for the high-quality economic development of China, this paper puts forward the following policy recommendations based on the above conclusions. First of all, investment in scientific and technological innovation should be increased and the market-oriented allocation of factors should be improved, as scientific and technological innovation is an important engine for a sustained and healthy regional economy with enhanced comprehensive competitiveness. At the same time, the full play of scientific and technological innovation also requires a complete system of market-based factor allo-

cation, with which the innovative achievements can be efficiently transformed into realistic productive forces. Hence, equal attention should be paid to the reform of market-oriented allocation of factors and the role of the market in transforming scientific and technological achievements. Secondly, infrastructure construction should be constantly improved to support high-quality regional development, as it is the guarantee of social production and people's life, as well as the foundation for sustained and healthy economic development. At present, a new round of technological changes, such as artificial intelligence, big data, and 5G, have brought new opportunities and challenges for infrastructure construction in various regions. In order to take this opportunity and seize the dominance of digital economy development, all regions must speed up the construction of new infrastructure, such as 5G and big data centers. Besides, the integration of "old and new infrastructure" needs to be promoted. Finally, with different conditional elements, the quality of economic development can be achieved through different combinations. A single conditional element does not hinder economic development, and policy makers can compare multiple equivalent paths to achieve high-quality economic development. At the same time, technological innovation, marketization, infrastructure construction, and other conditional factors should be fully utilized for high-quality regional economic development.

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