

# Research and Suggestions on the Coordination and Adaptation of Industrial Structure and Talent Structure in Jiangsu Province

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**Abstract:** Regional talent structure optimization and regional industrial structure upgrading of collaborative development is the objective law requirements. In order to explore the problem of the compatibility between the talent structure and the industrial structure in Jiangsu Province, this paper constructs an index system, and uses the entropy method to measure each index, and draws the conclusion that the compatibility between industry and talent in Jiangsu Province has been continuously improved in the past two decades.

## 1. Introduction

Jiangsu province as one of the most developed and most dynamic provinces in our country, the province's industrial agglomeration, talent agglomeration situation clearly, but, in the process of development of Jiangsu province also exists obvious regional industry and the talent development uncoordinated problems, for a long time, increased volume of population data in Jiangsu province and the economic dimension of the identity of the second nationwide do not have a match, As the competition for talents intensively intensives, talents from Jiangsu Province continue to flow to more developed market economies such as Shanghai and Zhejiang, resulting in the loss of local talents. In this context, it is of great practical significance to explore the matching degree between the talent structure and the industrial structure in Jiangsu Province to optimize the regional talent structure to support the upgrading of industrial structure and boost the regional economic development.

## 2. Literature review

The definition of "talent" by domestic scholars is divided into two types: connotation and extension. The connotation defines "talent" from the essential attribute, that is, a person who has or has learned to master a certain skill and realizes the value of life by making contributions to human society. The extensional definition focuses on the definition of the entity and scope of talents. Zhang Yanping (2011) [1] believes that all talents who meet one of the following three conditions can be considered as talents : (a) those with college education or above; (b) Persons holding professional and technical posts at the junior level and above; (c) Persons with intermediate and higher technical qualifications. The Outline of the National Medium - and Long-Term Talent Development Program (2010-2020) [2] defines talents as those who have specific professional skills and knowledge, engage in creative labor and make contributions to society, and are human resources with high labor ability and quality.

According to the viewpoint of traditional economics, all the activities that have input-output behavior can be called industrial activities. Academics, represented by academician Zhu Gaofeng (2000) [3], elaborated the concept of industry in detail: production departments are classified according to different types of final products, and a group of people or enterprise units that produce the same type of products combine to form an industry.

Zhao Guanghui (2006) [4] is pointed out that between talent structure and industrial structure has good adaptation degree refers to the quantity and quality of talent can effectively meet the needs of economic development, to support the optimization and upgrading of industrial structure and regional economic development to provide power for a long time, the distribution of quantity and quality of

talent can effectively meet the needs of industrial development and optimization of industrial structure adjustment.

### 3. Model specification

#### 3.1 Establishment of comprehensive evaluation index system

Refer to the above principles and ideas of evaluation index selection, draw lessons from Zhang Yanping, Li Mingsheng [5] and others of the national talent structure and industrial structure dynamic adaptation degree of the construction of a research model, this article from the system, target layer, criterion layer, four level indicators layer construct the final comprehensive evaluation index system.

#### 3.2 Classification of fitness levels

Referring to the classification standard of fitness level proposed by Zhang Yanping (2011)[1], the fitness level interval [0,1] was divided into 10 grade intervals. The fitness value contained in each sub-interval represented the same fitness level, the same fitness level represented the same fitness state, and ten different fitness states formed a continuous ladder. Taking 0.5000 as the limit, the ten fitness levels are divided into two categories: maladjustment (fitness value is within the range [0,0.5000]) and coordination (fitness value is within the range [0.5001, 1]).

### 4. Positive research

#### 4.1 Indicator power value calculation

In this paper, the index data of 20 years from 2000 to 2019 were selected as the original data, and the entropy method was used to calculate the original data, and the weights of each evaluation index were obtained as shown in Table.1.

Table.1. Table of comprehensive evaluation index system and calculation method

System layer	Criterion layer	Index layer	weight
Adaptability of talent structure and industrial structure	Industry talent quantity and quality input	Ratio of education investment in GDP = education investment /GDP	0.001098
		Growth rate of educational investment = educational investment in the current year/educational investment in the previous year -1	0.035470
		Gross enrollment rate of higher education	0.013513
		Ratio of R&D investment to GDP =R&D investment /GDP	0.025397
		Growth rate of R&D investment = current year's R&D investment/last year's R&D investment -1	0.041495
	Industry talent quantity and quality structure	Talent density = number of employees/population	0.000015
		Ratio of the number of professionals in the primary industry = number of professionals in the primary industry/number of professionals in the three industries	0.020629
		Ratio of the number of talents in the secondary industry = number of talents in the secondary industry/number of talents in the three major industries	0.002408

		Number of tertiary industry professionals = number of tertiary industry professionals/number of three major industries professionals	0.003188
		Ratio of the number of talents in high-tech industry = number of talents in high-tech industry/number of talents in all industries	0.041369
	Industrial talent production efficiency coordination	The deviation degree of talent structure in the primary industry = (GDP composition ratio of the primary industry/talent composition ratio of the primary industry) -1	0.000106
		The deviation degree of talent structure in the secondary industry = (GDP composition ratio of the secondary industry/talent composition ratio of the secondary industry) -1	0.104155
		The deviation degree of talent structure in the tertiary industry = (GDP composition ratio of the tertiary industry/talent composition ratio of the tertiary industry) -1	0.028292
		The deviation degree of talent structure in high-tech industry = (GDP composition ratio of high-tech industry/talent composition ratio of high-tech industry) -1	0.027108
	Coordinating the performance of industrial talents	Number of patent applications per 10,000 people = number of patent applications per population	0.166391
		Number of patents granted per ten thousand people = number of patents granted/number of population	0.174866
		Number of technical market contracts	0.024712
		Technical market contract amount	0.202638
		Labor productivity = regional GDP/ number of regional employed talents	0.087149

#### 4.2 Calculation of fitness results

According to the above calculated data, the fitness degree of industrial institutions and talent structure in Jiangsu Province from 2000 to 2019 can be further obtained. The structure is shown in Table.2.

Table.2. Changes in the Adaptability of Industrial Talent Structure in Jiangsu Province from 2000 to 2019

Year	Fitness	Adaptability level	State of adaptation
2000	0.0740	1	Extreme disorder
2001	0.1111	2	Highly disorder
2002	0.1287	2	Highly disorder
2003	0.1355	2	Highly disorder
2004	0.1647	2	Highly disorder
2005	0.2030	3	Moderate disorder
2006	0.1962	2	Highly disorder
2007	0.2579	3	Moderate disorder
2008	0.2790	3	Moderate disorder
2009	0.3254	4	Low-grade disorder
2010	0.4181	5	Weak degree of disorder
2011	0.5125	6	Weak degree of coordination
2012	0.5831	6	Weak degree of coordination
2013	0.5890	6	Weak degree of coordination
2014	0.5463	6	Weak degree of coordination
2015	0.5942	6	Weak degree of coordination
2016	0.6167	7	Low-grade coordination
2017	0.6520	7	Low-grade coordination
2018	0.7618	8	Moderate coordination
2019	0.8417	9	Extreme coordination

## 5. Conclusion

According to the analysis of the results in Table.2, the following two conclusions can be drawn :(1) The coordination and adaptation degree of industrial talents in Jiangsu Province has been on the rise in the past 20 years, rising from the extreme imbalance in 2000 to the high coordination in 2019, indicating that the industrial structure of Jiangsu Province has been continuously adjusted and optimized in the past 20 years.(2) The adjustment speed of industrial talent structure fit degree in Jiangsu Province from 2008 to 2012 and after 2017 is relatively fast.

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