

# The Policy Implementation and Development Trend Analysis of Regional Economic Development in China

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## Abstract

*Along with the reform and opening up, the economic gap between the regions along the Yangtze River in Jiangsu province is growing, and the coordinated development of regional economy between the regions along the Yangtze River has become the focus of the people and the government of Jiangsu. Through comparison and analysis, this paper defined the concept of coordinated development of regional economy, and through the external features of regional economic coordination development, the evaluation system was constructed. By using the evaluation system to evaluate the coordinated development of regional economy along the Yangtze River in Jiangsu Province, it was found that there are many problems in the coordinated development of regional economy in eight cities along the Yangtze River in province. Finally, some suggestions on the economic development of the Yangtze River in Jiangsu province were put forward with the strategy of the Yangtze River economic belt construction.*

**Keywords:** Yangtze river economic belt; Coordinated development of regional economy; Jiangsu area along the yangtze river

## 1. Introduction

On April 28, 2014, Premier Li Keqiang chaired a forum in Chongqing, for the study of the Yangtze River Economic belt based on the Golden Waterway. The construction strategy of the Yangtze River economic belt not only brings a great opportunity for the economic development of the entire Yangtze River Basin, but also has created an unprecedented favorable condition for the economic development of the cities along the Yangtze River in Jiangsu province. How to make use of this opportunity to achieve the coordinated development of economy along the Yangtze River has become the focus of economic construction in Jiangsu province this year and even in the next several decades. This paper attempts to construct the evaluation system of regional economic coordinated development from the view of regional economy, and to discuss how to carry out coordinated development of regional economy in order to provide a certain degree of reference value and contribution to the economic development of Jiangsu Province along the Yangtze River.

## 2. Comparison and Definition of the Concept of Regional Economic Coordinated Development

Through the literature researches of the predecessors, we can find that the concept of regional economic coordinated development has become more and more clear. Through comparison, it is not hard to see the concept of regional economic coordinated development include: ① The study category of the regional economic coordinated development is the change process of the regional economic relations, but not a regional

internal economic system. ② Coordinated development of regional economy and sustainable development of regional economy have essential difference. Sustainable development of regional economy means: in the existing natural resources (including environmental) constraints, give full play to regional advantages, to achieve sustained and effective regional economic growth. [2] Regional economic sustainable development is to study the relationship between resources, environment and economy, while regional economic coordination development studies the relationship between regional economies.

In this paper, as for the word of development, it is a description of the change process, so it is not suitable to be defined as a state. Therefore, this paper uses Tan Chenglin's definition: the coordinated development of regional economy refers to a process that under the condition of regional opening, the economic relations between regions are becoming more and more closely, the economic interdependence is increasing, the economic development is related to the interaction and the positive promotion, the economy of each region all develops sustainably as well as the regional economic differences tend to narrow down [3].

### **3. Evaluation Method of Regional Economic Coordinated Development**

#### **3.1. Criterion of Regional Economic Coordinated Development**

Chen Dongsheng (2005) suggested that the coordination of regional development should be measured mainly from two aspects: first, per capita regional economic development level, per capita income level and per capita level of public products to enjoy; the second is the inter-regional collaboration development level. [4] Peng Rongsheng (2007) believed that the regional economic coordination development has 4 signs: the regional economic relations are increasingly close; the regional division of labor tends to be reasonable; the gap between regional economic developments is in a certain "degree", and gradually reduced; the regional economy is in an efficient growth as a whole. And in the evaluation system, three indicators were selected to reflect the four signs of the level of regional economic integration, regional economic development gap, and the speed of regional economic development. [1] Chen Xiushan and Yang Yan (2010) believed that the evaluation criteria of regional coordination development mainly include the following four aspects: the regional comparative advantage deviation index, the regional disparity index, the basic public service equalization degree index, the market integration degree index. [5] Tan Chenglin believed that the three criteria of regional economic developments are: the regional economic relations, regional economic growth, and regional economic differences [3].

Based on the definition of the concept of regional economic coordination development, combined with the analysis of the judgment index, the paper finally selected three descriptions of the external characteristics of regional economic coordinated development by Tan Chenglin: regional economic relations, regional economic differences, and regional economic growth. The reasons are as follows:

(1) To determine whether the regional economy is in coordinated development or not, the external characteristics of the regional economy is enough to reflect. If the industrial structure, the division of labor, including a variety of mechanisms in the regional economic system is adequate and reasonable enough and the market is open and unified enough, then it can reflect from the three external characteristics of regional economic relations, regional economic growth and regional economic differences.

(2) As the external features of the regional economic coordination development, regional economic relations, regional economic differences, and the sustained and rapid economic development of regional economy as a whole have the inherent logic relevance. Firstly, regional economies are not independent of each other, but the open economy system with mutual connection and interaction. The existence of various forms of

connections in regional economies is the basis for the coordinated development of regional economy, and the regional economic coordination development is bound to be accompanied by the deepening of regional economic linkages. Secondly, narrowing the regional economic development gap is an important part for the coordination of regional economy, which is also the concrete embodiment of social equity. Thirdly, the coordinated development of regional economy must promote all the economic development of each region, which is not only one of the purposes of regional economic coordinated development, but also the basic requirements for the realization of coordinated development [3-6].

### 3.2. Measurement Method of Evaluation Index of Regional Economic Coordinated Development

**3.2.1. Measurement Method of Regional Economic Relation State:** There are two methods to measure regional economic relations. The first one is the quantitative analysis model of economic linkage intensity (gravity model) which is used to measure the contact strength of economic ties between regions; the other is the global Moran's I coefficient. But the first method result is the economic contact intensity, which is an absolute quantity, needing to be standardized, unable to be directly used to evaluate the degree of economic relations. Therefore, this article selects the global Moran's I coefficient as an index to measure regional economic linkages. As a way to measure spatial autocorrelation, the global Moran's I can measure the economic relevance of the same variable in different spatial locations. Its calculation formula is:

$$I = \frac{n}{\sum_{i=1}^n \sum_{j=1}^n W_{ij}} \times \frac{\sum_{i=1}^n \sum_{j=1}^n W_{ij} (x_i - \bar{x})(x_j - \bar{x})}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

Among them, n is the number of regions;  $x_i$  and  $x_j$  are the observed values of region i and region j;  $\bar{x}$  is the average value of observation index;  $W_{ij}$  is one element of spatial weight matrix W, and W is 0-1 matrix based on distance. The matrix is shown by the following:

$$W = \begin{bmatrix} W_{11} & \cdots & W_{1n} \\ \vdots & \ddots & \vdots \\ W_{n1} & \cdots & W_{nn} \end{bmatrix}$$

Spatial weight matrix based on distance is in accordance with the distance standard, when the distance  $d_{ij}$  of regional administrative center of region i and region j is away from distance d,  $W_{ij}=0$  ; when  $d_{ij}$  is within the distance d,  $W_{ij}=1$  ;  $W_{ij}$  of the self-region equals 0. in this paper, d is set as 100km.

According to the above formula, the range of Moran's I index value is from -1 to 1, in which value larger than 0 represents positive correlation, value smaller than 0 represents negative correlation. The larger the value is means the greater the economic correlation between the regions is. In this paper, per capita GDP is used as variable to calculate the spatial correlation degree of per capita GDP of different regions by calculating the corresponding Moran's I index, to reflect the economic relations between regions.

**3.2.2. Measurement Method of Regional Economic Difference:** There are three statistical methods to measure the regional economic disparity, such as variation coefficient, Theil entropy index and Gini coefficient, *etc.* with various characteristics of each. Because the average income data of inhabitants of the cities in Jiangsu province are difficult to obtain, Gini coefficient can not be calculated, while Theil entropy index is focuses on the analysis of the economic differences between regions and the internal

region. This paper adopts the weighted coefficient of variation to measure the economic difference between regions. The weighted variation coefficient is:

$$C = \frac{\sqrt{\sum_j (x_j - \bar{x})^2 p_j}}{\bar{x}}$$

Among them,  $x_j$  is the per capita GDP of region  $j$ ,  $j = 1, 2, \dots, n$ ;  $\bar{x}$  is the per capita GDP within each region;  $p_j$  is the proportion of population in region  $j$  accounting for the population of the entire regions.

**3.2.3. Measures of Regional Economic Growth State:** Regional economic growth, if expressed by the coefficient of variation, can only show the economic growth rate difference among regions, but can not show the overall efficiency of growth. In addition, the overall economic high growth between regions, rather than rapid economic development of some regions and slow economic development of some other regions, has been able to be explained by the index of the regional economic differences degree. Therefore, the regional economic growth indicators can be explained directly with the entire regional economic development speed, the formula is:

$$V = \frac{Y_t - Y_{t-1}}{Y_{t-1}}$$

Among them,  $V$  is the regional economic development speed in the period of  $t$ ;  $Y_t$  is the GDP in the period of  $t$ ;  $Y$  is the GDP in last period.

**3.2.4. Comprehensive Evaluation Model and Evaluation Criteria of Regional Coordinated Development Strategy:** By the regional economic relations index  $I$ , the regional economic difference index  $G$ , and the regional economic growth index  $V$ , we can build a comprehensive evaluation index of regional economic coordination development. In this paper, we use the arithmetic average form, that is:

$$U = \frac{\varphi_1 I + \varphi_2 C + \varphi_3 V}{3}$$

Among them,  $U$  is comprehensive index of regional economic coordinated development;  $\varphi_1$ 、 $\varphi_2$ 、 $\varphi_3$  are regional economic relations index  $I$ , regional economic difference index  $C$ , and the weight of impact of regional economic growth index  $V$  on  $U$ .

The weight of the comprehensive evaluation system is determined by the direct weight making method. Because the three indexes of the regional economic relations index  $I$ , the regional economic difference index  $G$ , and the regional economic development index  $V$  are the indispensable external features of regional economic coordinated development, this paper considers that the three are equally important, so takes  $\varphi_1 = \varphi_2 = \varphi_3 = 1$ .

The coordination development of regional economy has relativity, but there is no absolute standard for the coordination degree. In addition, there is the difference of degree in coordination, namely, the hierarchy. If the measure of coordination degree is expressed with the number between 0 and 1, when the coordination degree is 1, it means completely coordinated; when the coordination degree is 0, then it means totally uncoordinated. In order to make the stage characteristics in the regional economic coordination development, we shall make an evaluation standard for the time being, see Table 2.

**Table 1. Evaluation Criteria of Regional Economic Coordination Development**

U	[0,0.2]	(0.2,0.4]	(0.4,0.6]	(0.6,0.8]	(0.8,1]
Evaluation of coordination degree	Not coordinated	Fairly not coordinated	Moderate coordinated	Relatively coordinated	Highly coordinated

## 4. An Empirical Analysis of Regional Economic Coordinated Development in Eight Cities Along the Yangtze River

### 4.1. Data Source

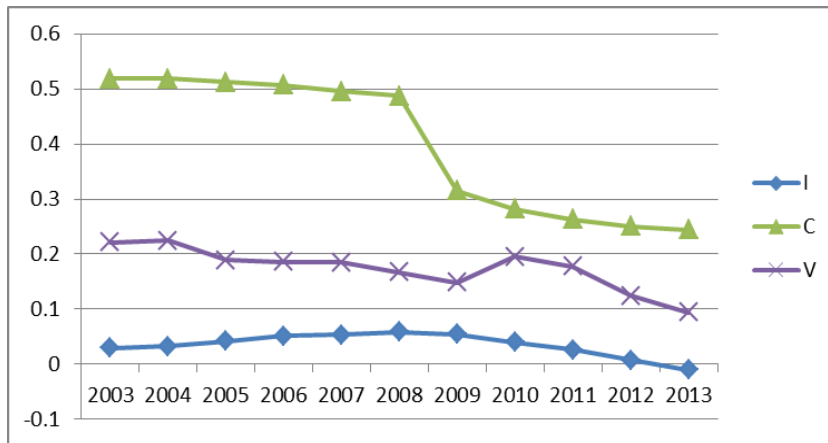
The original data source of this paper is "Jiangsu Statistical Yearbook" (1993 - 2014), and the regional units are based on the administrative divisions of the prefecture level cities, that is, the basic unit of the eight cities along the Yangtze River in Jiangsu province. Basic data are the region's GDP, per capita GDP, the region's total population at the end of the year from 1992 to 2013, in eight cities along the Yangtze River, and so on.

### 4.2. Index Evaluation

**4.2.1. Regional Economic Relation Status Evaluation:** As shown from "I" value in Figure 1: the Moran' I index has been in [0.02, 0.06] from 2003 to 2011, which shows that the economic ties between the cities along the Yangtze River has been in a very weak connection state. By the years from 2012 to 2013, Moran's I has further declined, and even with the emergence of a spatial negative correlation.

**4.2.2. Regional Economic Difference Status:** As shown from "C" values in Figure 1: from weighted coefficient of variation of per capita GDP, it can be seen big economic differences between the cities along the Yangtze River in Jiangsu Province from 2003 to 2008. In 2008 to 2009, economic difference gap between the cities along the Yangtze River suddenly narrowed; since 2009, the economic difference between cities along the Yangtze River has been slowly narrowing.

**4.2.3. Regional Economic Growth Status:** As shown from "V" values in Figure 1: The overall downward trend; the main reason is that the level of urbanization in Jiangsu province is in the transition from the high-speed stage to the low stage, and the role of urbanization in the economic growth is gradually weakening. On the other hand, in order to maintain the sustained and healthy development of the economy, the government began to pay attention to the structure adjustment and growth quality, no longer pursue high economic growth.



**Figure 1. The Trend of the Indicators**

### 4.3. Comprehensive Evaluation

Calculation results of the comprehensive index U of regional economic coordinated development are shown in table 4. It can be seen that the regional economic coordination development of the eight cities along the Yangtze River has been in the basic coordination stage from 2003 to 2012. In 2013, there was an uncoordinated situation. Therefore, the regional economic coordination development in the eight cities along the Yangtze River is still to be strengthened.

**Table 2. Comprehensive Index and Coordination Degree of Regional Economic Coordination Development Over the Past Years**

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
U	0.500	0.504	0.457	0.457	0.461	0.438	0.467	0.543	0.518	0.437	0.388
Coordination degree evaluation	Basic ally coordinated	Basic ally coordinated	Basic ally coordinated	Basic ally coordinated	Basic ally coordinated	Basic ally coordinated	Basic ally coordinated	Basic ally coordinated	Basic ally coordinated	Basic ally coordinated	Not quite coordinated

## 5. Suggestions on Economic Coordination Development of the Regions Along the Yangtze River under the Strategy of Yangtze River Economic Belt Construction

### 5.1. Break the Barriers of Administrative Divisions, to Promote Market Integration

Specific measures include: first, the city governments at all levels in the regions along the Yangtze River area of Jiangsu Province can build a platform for information sharing, opportunity sharing and resource sharing. On such a platform, suppose an enterprise with foreign capital wanting to seek the development in a region may be refused by local government; in previous time, it may give up, but now it can be accepted by other regions due to the information sharing; secondly, cooperation agreements can be signed between city governments to develop a consensus. For example, the city cluster in the middle reaches of Yangtze River has established the yearly joint meeting system, and has released a series of cooperation framework agreements, including the Changsha Declaration and the Wuhan Consensus. Such a joint conference system is worth learning. Thirdly, the coordinated development forum of cities along the Yangtze River should be held regularly to discuss the viewpoints, to study development strategy and to strengthen exchanges and cooperation between the municipal governments [17].

## **5.2. Accelerate the Construction of a Comprehensive Three-Dimensional Transport System**

Traffic construction is the guarantee of economic development. Only with the perfect traffic system, can the regional economic relations and economic interaction be unimpeded. The Integrated Three-dimensional Transport Corridor Planning of Yangtze River Economic Belt (2014-2020) proposed: relying on the Yangtze golden waterway, coordinate the development of water, railway, highway, aviation, pipeline and other means of transport, accelerate the construction of integrated transport hub and international channels, and build a cohesive and efficient, safe and low-carbon integrated three-dimensional transport corridor, to enhance the strategic support for the development of the Yangtze River Economic Belt. [18] Therefore, regions along the Yangtze River of Jiangsu Province should take advantage this opportunity of the construction strategy of Yangtze River Economic Belt to accelerate infrastructure construction, improve the transportation system, and build a sound transportation network, to open out a convenient high-speed channel for the economy.

## **5.3. Give full Play to Regional Advantages, to Create a Perfect Modern Port**

Regions along the Yangtze River of Jiangsu lie in the "T" - shaped junction of the main line of the Yangtze River and coastline, close to Shanghai, with clear geographical advantages. They should make use of the location near Shanghai and play a demonstration and driven role of Shanghai Free Trade Zone to the Yangtze River basin. The functional radiation and institutional innovation of Shanghai Free Trade Zone will drive the economic development of the regions along the Yangtze River in Jiangsu, and play a model role. The system innovation achievements of Shanghai Free Trade Zone are to be popularized to the areas along the Yangtze River in Jiangsu Province, and even to the Yangtze River Economic Belt, to promote the coordinated development of regional economy.

As a "Golden Waterway", the economic potential of Yangtze River still needs to be excavated. A coordinated and unified administrative mechanism should be established among the ports along Yangtze River of Jiangsu, in the same time to strengthen the coordination of competition, for the formation of a certain dislocation competition, and thus develop their own competitive advantages. Make use of ocean-side regional advantages to construct deep water port. Yangtze River Economic Belt construction will greatly increase the foreign trade throughput of the Yangtze River Basin, for Shanghai port is becoming saturated, there is bound to be requirements for a diversion of goods and classification. The construction strategy of the Yangtze River Economic Belt makes the ocean-side construction of deep water ports have a wider trade flow support.

## **5.4. Accelerate Industrial Upgrading and Industrial Transfer, to Encourage Cross-Regional Development of Enterprises**

There is not only the development of the Yangtze River regions of Jiangsu province having obvious gradient characteristics, but the gradient characteristics of the whole Jiangsu province from South of Jiangsu, middle of Jiangsu to North Jiangsu, are more obvious. To coordinate the development of regional economy, industry transfer is the only way to pass. To encourage enterprises for cross-regional development and expansion not only makes the enterprise get more benefits, but also can enhance the economic ties between the regions and promote the economic development of less developed areas, to solve capturing of regional interests to a certain extent. On the one hand, the developed regions should strengthen the pressure and power of industrial upgrading and formulate policies to support and encourage industrial upgrading, for industrial upgrading and optimization will make the industry transfer more smoothly; on the other hand, improve the infrastructure conditions in underdeveloped areas by using the advantages of "Park

Mode": more specialized production, reduction of transaction costs, and more frequent cooperation and competition between enterprises, to enhance knowledge spillovers and form industrial clusters. Also, give full play to the characteristics of inland shipping such as less coverage of area, large capacity, low price, low energy consumption, and light pollution, for the development and construction of businesses like equipment manufacturing industry with features of huge volume of the products, long distance transportation, and high logistics cost, both to play the comparative advantages, and to protect the environment.

### **5.5. Integrate Regional Strategy, to Construct Reasonable Regional Development Model**

The construction of the Yangtze River Economic Belt adopts a point-axis development model. Seen from the areas along the Yangtze River in Jiangsu Province, what kind of development model to be adopted is worthy of study, for the same development model is not necessarily applicable to different regions or different stages of development. There is an evolution relationship between the development of the growth pole, the development of the point-axis and the development of the network. The development of the growth pole will be evolved to the development of the poles - axis, and then to the network development. The three parts are three different stages of regional economic development. South of Jiangsu is in the stage of network development, the mid Jiangsu is in the stage of point-axis development, and the north of Jiangsu Province is in the development stage of growth pole. In addition, the growth pole of the North Jiangsu is not obvious; although there is obvious development axis in areas of mid Jiangsu, it is not obvious in the interior area, which is still in the growth pole development stage. [7] Therefore, the northern Jiangsu regions should strengthen the growth pole construction, to support the economic development of Northern Jiangsu Province, and promote the development of Northern Jiangsu province.

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