

# THE INVESTMENT CIRCUMSTANCES AND ITS CLASSIFICATION APPRAISAL OF CHANGJIANG RIVER DELTA

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**ABSTRACT:** This paper explains the meaning of investment circumstance, and analyses the overall feature of investment circumstances of the Changjiang River Delta zone and clears about its targets' system. Then the authors use "polytarget comprehensive value evaluation rule" to make comprehensive classification appraisal of the investment circumstance of the five regions including Shanghai, Ning (Nanjing)-Zhen (Zhenjiang)-Yang (Yangzhou), Su (Suzhou)-Xi (Wuxi)-Chang (Changzhou)-Tong (Nantong), Hang (Hangzhou)-Jia (Jiaxing)-Hu (Huzhou), Ning (Ningbo)-Shao (Shaoxing)-Zhou (Zhoushan) etc., which have similar region feature and district join together due to the long-term development of society and economy among these regions.

**KEY WORDS:** investment circumstances, Changjiang River Delta, macrocomparison, classification appraisal

"Investment circumstances" is usually regarded as the total of "infrastructure" and "preferential taxes". In fact it is a wide concept involving resources, location, society, economy, infrastructure and law and so on, a system consisting of many factors in natural and social circumstances which can attract fund for a certain period of time and in a certain space. It can be divided into two subsystems: one is hard circumstances subsystem, including geographical location, infrastructure, environment resource condition and so on, the other is soft circumstances subsystem, including social and political environment, economic environment and so on (Zhang, 1993).

Because the internal regions of the Changjiang(Yangtze) River Delta have many common-places on the development problem, on the one hand, differences of social and political factors of investment circumstances among internal regions are decreasing, on the other side, it is hard to demonstrate political factors on the meaning of quantity(Xu, 1992), this paper analyses the factors of hard circumstances system and some factors which have relation with economic envi-

ronment in soft circumstances subsystem.

## I. OVERALL FEATURES OF REGIONAL INVESTMENT CIRCUMSTANCE

### 1. Good Investment Circumstance and Infrastructure Basically Formed

#### *1.1 Obvious location advantage*

The Changjiang River Delta is located in the middle of the coast of China, close to rivers and sea, and has a strong attraction to the investment because of location advantage of convenient internal and external transportation near international shipping line.

#### *1.2 Regional infrastructure completed gradually*

Spatial network has been initially built, which takes Shanghai as its central hub linking up railway, road, shipping and airline. In respect of shipping Changjiang ports group has been formed which can reach coastal regions of China and anywhere along the Changjiang River and the major international ports in the world. In 1993 freight handling capacity reached 320 million yuan (RMB), nearly half of the national coastal total. In respect of land route, there are two national standard railways, four regional railways and Hu (Shanghai)-Ning(Nanjing), Hu (Shanghai)-Hang(Hangzhou)-Yong(Ningbo) expressways, Ning(Nanjing)-Tong(Nantong) highway, forming developed road net. In addition there are airlines of six airports flying between major cities of the whole country and connecting with five international airlines. Three key projects including microwave communication, optic fiber communication and program controlled telephone were constructed, strengthening connection with outside. The construction on the energy supply is also speeded up.

### 2. Advantageous Economic Base and Investment Benefit

The Changjiang River Delta has always been the most economic developed region. It supports the living of the population accounted for the 6.25% of the nation with only 1% land resources of the whole country, its agricultural output value occupies 20% of the nation, and GNP (gross national product) up to 13.1%. In addition, comprehensive economic benefit is in the leading position all over the country. In 1992, the profit and taxation reached 16.6 yuan (RMB) per hundred yuan fund, the labor productivity was 32919 yuan (RMB) per capita annually. This economic basic condition plays an important role in the process of the fund congesting to this region.

### 3. Favorable Labour Force Resource Condition

Quality of labour force in the Changjiang River Delta is obviously higher than other regions. In 1993, the technological and scientific staff were 1.72 million, occupying 17.2% of

the nation. There were 152 institutions of higher learning, and about one thousand research institutions. Many basic researches and applied exploiting researches are in advancing position, and it is very beneficial to investment.

In the process of opening and development of the Changjiang River Delta, a series of law were made in recent years, Pudong of Shanghai can enjoy more favorable policies than other open regions.

Besides, since the spring of 1992, all kinds of development zones have been constructed. The policies on the free and lessening taxation, supplying low price labour force, free charge or low price for land use, are even favorable.

Table 1 Appraisal region of investment circumstances

Region	Range
Shanghai region	Shanghai and the counties under its jurisdiction
Ning-Zhen-Yang	Nanjing, Zhenjiang, Yangzhou and the counties under jurisdiction of the municipalities
Su-Xi-Chang-Tong	Suzhou, Wuxi, Changzhou, Nantong and the counties under jurisdiction of the municipalities
Hang-Jia-Hu	Hangzhou, Jiaxing, Huzhou and the counties under jurisdiction of the municipalities
Ning-Shao-Zhou	Ningbo, Shaoxing, Zhoushan and the counties under jurisdiction of the municipalities

But with the long-term aggregation of population and economy, this region will face some problems in the future development, such as the relative shortage of land and energy, overloaded environmental capacity, worsening environment, etc. All of them limits the regional attraction for investment and the sustainable transcentuary development regional economy in some degree.

## II. INDEX SYSTEM AND METHOD OF CLASSIFICATION APPRAISAL OF REGIONAL INVESTMENT CIRCUMSTANCE

### 1. Establishment of Indicators System

According to Changjiang Delta concrete conditions five aspects are considered when establishing indicator system.

#### 1.1 Location condition

It means the relations between a region and its adjacent areas and the convenient degree connecting with outside in traffic. We mainly recognize location condition from the following respects. The first is to analyse relations of regional development with adjacent regions, especially with developed central cities. The second is to consider whether coastal region locates at the point of hub, and has the convenience close to major international shipping line. The third

is to analyse regional transportation and political geographical location and so on. The fourth is to pay attention to the scale of foreign businessmen's direct investment, which also reflects the investment and location condition of every region.

### 1.2 Resource condition

1) Energy condition. Energy is an important factor in regional development. Energy reserve in the Changjiang River Delta was not found much. But power industry is highly developed. We should lay stress on considering electricity supply and power consumption level of every region. Power consumption per capita is taken as an index to analyse regional difference of second energy in the Changjiang River Delta.

2) Water resources. The Changjiang River Delta is covered with water net, so water resource shouldn't influence investment circumstance very much. With industrial development and increasing of living level, water consumption is increasing. While water resource distributes unbalanced in the region, demand difference is even more on water source.

3) Land resource abundance. Man and land contradiction in the Changjiang River Delta is quite conspicuous. Here we take weighted average of land possession per capita and agricultural land possession per capita as indexes to measure land resource abundance.

### 1.3 Transportation condition

Many indicators can reflect transportation level. Because of resource limitation, we only use the total of freight transportation per unit area to analyse regional transportation difference.

### 1.4 Communication convenience degree

As contemporary society is information society, whether telecommunication facilities are complete and convenient decides communication degree with outside. We appraise regional communication condition with telephone quantity owned per hundred people.

### 1.5 Regional economic development level and structure indexes

We choose GNP per capita, the important index to reflect regional economic development situation of every respect, with other eleven indexes as supplement. Annual increasing rate of gross national income is used to measure sustainable degree of economic development. The ratio of foreign trade purchasing quota in the GNP reflects export-oriented degree of regional economy. Benefit and tax per hundred yuan and labor productivity are used to reflect regional economic beneficial condition. The ratio of social commodity retails to the social gross output value and proportion of non-state owned enterprises output value in the industrial output value are used to reflect the degree of regional market development. Fixed asset per capita and abundance of labor resource (presented by the product of multiplying literate ratio with total number of labour) and technicians amount in ten thousand people reflect superiority degree of one regional economic development.

In addition, when analysing the geographical difference of industrial structure, it is necessary to analyse the proportion of the second and tertiary industries in three industries. We will find the development of every region and the regional modernization, the rise of industry are closely related with tertiary industry booming(Wang *et al.*, 1987).

We adopt “polytarget comprehensive value evaluation rule”. Its usual program is 1) to build up index tree graph and determine the weight of every index, then correct them by typical investigation, 2) to determine value appraisal coefficient of every factor, 3) to build up comprehensive appraisal model of investment circumstance, and to extract investment circumstance’s appraisal value of every region based on the operational analysis, 4) to explain and discuss the appraisal value. The detailed factors are shown in Fig. 1.

The detailed appraisal model is: if choose  $m$  factors,  $n$  indexes, the appraisal value of the regional investment circumstances is equal to the sum of every factor’s mark, that is:

$$E_i = \sum_{j=1}^n F_{ij} W_j$$

where  $E_i$  is appraisal value of the regional investment circumstances,  $W_j$  is the value appraisal coefficient of the factor  $j$  and  $F_{ij}$  is the mark of factor  $j$  in the region  $i$ , it can be extracted by the follow formula, that is

$$F_{ij} = \frac{F'_{ij} - \min_i(F'_{ij})}{\max_i(F_{ij}) - \min_i(F_{ij})} \quad (i = 1, 2, \dots, 5)$$

To calculate conveniently, we enlarge one hundred times of every factor’s value appraisal coefficient. We calculate investment circumstances appraisal value of every region. The mark of every region reflect its investment circumstance condition and level.

### III. RESULT APPRAISAL

The highest value of investment circumstance appraisal is Shanghai, Su (Suzhou)-Xi (Wuxi)-Chang (Changzhou)-Tong (Nantong) region, Ning (Nanjing)-Zhen (Zhenjiang)-Yang (Yangzhou) region, Hang (Hangzhou)-Jia (Jiaxing)-Hu (Huzhou) region, Ning (Ningbo)-Shao (Shaoxing)-Zhou (Zhoushan) region successively. The score of Shanghai is as high as 36.515. Investment circumstance of other four region gets worse respectively along Hu (Shanghai)-Ning (Nanjing) railway and Hu (Shanghai)-Hang (Hangzhou)-Yong (Ningbo) railway from east to west and from north to south. Because of urban construction and historical accumulation of development for many years, good transportation condition, a galaxy of talents, and the opening and development of Pudong, naturally it has a good investment circumstance value situation. In the days to come, its major development direction is to utilize land resource rationally based on regional sustainable economic development, and further improve investment circumstance with constructing Shanghai into an international economic financial and trade center. It should develop tertiary industry and accelerate progress of the economic marketalization, especially further expand the investment fields to foreign fund, for example, to enlarge operating scope of foreign fund financial organs, as the same time to absorb more foreign fund banks and overseas Chinese fund banks to open branches in Shanghai

Su-Xi-Chang-Tong region which is situated on the beach of the Changjiang River and Tai hu Lake, is the second class of investment circumstance in the Changjiang River Delta. Since

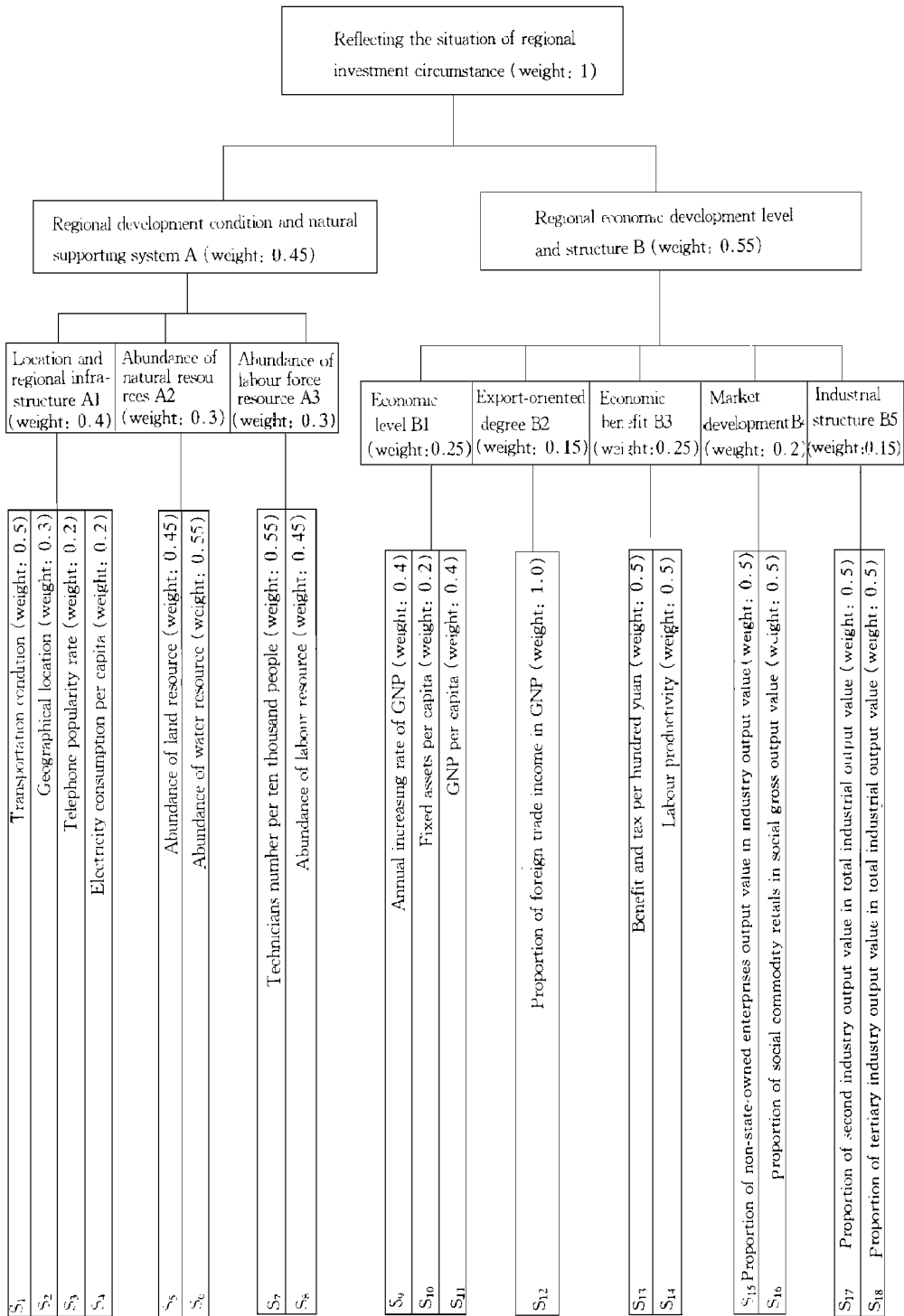


Fig. 1 The target factors of investment circumstances and their weight distribution

ancient time, it has been a propitious place for giving birth to great men. In recent years, its economy and market developed fastly, although not faster than Shanghai. As its location is around Shanghai, it is the first class reception area and economic hinterland to receive radica

Table 2 Comprehensive appraisal factor score of investment circumstances

Regions	Shanghai	Ning-Zhen-Yang	Su-X+Chang-Tong	Hang-Jia-Hu	Ning-Shao-Zhou
S <sub>1</sub>	2.1501*	0.6020	0.9480	0.8281	0.0000
S <sub>2</sub>	2.1501*	0.1871	0.8154	0.5583	0.0000
S <sub>3</sub>	5.0000*	2.8003	3.4000	0.0000	3.4000
S <sub>4</sub>	4.2813*	4.2000*	3.9801	3.8752	0.0000
sum	13.5815*	7.7894	9.1435*	5.2616	3.4000
S <sub>5</sub>	3.8507*	2.9182	3.2963*	1.5652	0.0000
S <sub>6</sub>	0.0000	2.7001	2.1501*	0.7547	0.3495
sum	3.8507*	5.6183*	5.4464*	2.3199	0.3495
S <sub>7</sub>	0.6703	0.0000	1.0054	2.8153*	3.1501*
S <sub>8</sub>	2.8501*	0.8701	0.1482	0.3832	0.0000
sum	3.5204*	0.8701	1.1536	3.19985*	3.1501*
S <sub>9</sub>	4.2500*	0.9951	2.5753*	0.5493	0.0000
S <sub>10</sub>	2.5000	0.5782	0.4239	0.2687	0.0000
S <sub>11</sub>	0.9152	2.9837*	5.2592*	0.6563	0.0000
sum	7.6652	0.4570	8.2584*	1.4743	0.0000
S <sub>12</sub>	1.7500*	0.8023	0.6435	0.0000	0.7981
S <sub>13</sub>	3.5000	0.0000	1.8963	2.0724*	1.1713
S <sub>14</sub>	0.0000	0.8204	0.6028	0.8142	3.5000*
sum	3.5000*	0.8204	2.4991	2.8866	4.6713*
S <sub>15</sub>	0.0000	0.5791	1.5758	1.0803	1.2194*
S <sub>16</sub>	0.9471*	0.6972	0.6637	1.0504*	0.0000
sum	0.9471	1.2763	2.2395*	2.1307*	1.2194
S <sub>17</sub>	1.7503*	0.7261	1.3465*	0.0000	0.4943
S <sub>18</sub>	0.9503*	0.4812	0.0000	0.7594*	0.0171
sum	1.7006*	1.2073*	1.3465*	0.7594	0.5114
Total	36.5155*	22.8781	30.7305*	18.0310	13.8903*

\* advantageous factor reaching average level

tion of Shanghai development, especially Pudong development and opening. Furthermore its land resource is more than that of Shanghai and it is also one of the areas with the highest urbanization level, also it possible that this region accomplishes regional modernization and become the best one of investment circumstance following Shanghai region. So it should be harnessed and developed in the light of local conditions, and continue to strengthen and give full play to central city's function and radiation effect. Except for the industrial function, it must develop tertiary industry vigorously and improve transportation condition especially air and shipping conditions.

Ning-Zhen-Yang region, as economic core of Jiangsu in the history, owns many large and medium-sized state-owned enterprises. It's one of the important state industry zones. In the course of the economic export-oriented development, as a result of administrative and economic

systems, its market grew slowly and regional economic benefit fell behind South of Jiangsu. Otherwise its regional development condition such as transportation is good, and it is rich in intellectuals. With opening and energizing policy on large and medium-sized state-owned enterprises, operating system is no longer the limited factor, it has much developing potentiality and driving capacity. Now the most urgent thing to do is to promote economic benefit and to accelerate economic increasing speed. Except for the central cities of Nanjing, Zhenjiang, Yangzhou and so on, there are areas with backward economy and less developed township enterprises in the Ning-Zhe-Yang region, therefore affecting the comprehensive development degree. To solve this problem, it is necessary to give every area full play to their resource advantages and support local industry and township enterprises, to accelerate the regional economic development speed by promoting productivity efficiency of every sectors

Hang-Jia-Hu region is rich in labour resources and has favorable infrastructure. Its market mechanism grows well, and regional economic benefit is also at fairly high level. But it is our national important agricultural area since ancient time and Hangzhou is also the famous tourism city of China, so the proportion of the second industry is low. This indicates that the level of industrial structure (the proportion of the three industries is 21.3:52.5:26.2, but in Shanghai the proportion is 13.8:59.8:26.4) is not high in the region and it is lack of solid economic basis, so it needs to make policies for adjusting industry structure and improving technology, favorable financial and taxation policy so as to promote regional strength of economic development, to enlarge fixed assets scale and to form the good circulation between the economic development and replenish the economic basis.

Investment circumstance of Ning-Shao-Zhou region is relatively worse in the Changjiang River Delta. Its infrastructure is undeveloped. With the deepening of opening and reform economy, this region develops fast and regional economic benefit can compete with Shanghai. Hence the key point to improve the investment circumstance is to complete transportation and communication network, strengthen economic relation with outside, in which the port and railway are the most important for transportation development. In short term it is important to speed up enlargement and restoration of Beilun Harbor.

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