CHINESE GEOGRAPHICAL SCIENCE
Volume 2, Number 3, pp.256–265, 1992
Science Press, Beijing, China

RESEARCH ON REGIONAL COMPREHENSIVE DEVELOPMENT IN DEVELOPED REGIONS —THE CASE OF SHANGHAI–NANJING–HANGZHOU AREA

Lu Xinxian (陆心贤)
(East China Normal University, Shanghai, 200062, PRC)

ABSTRACT: The developed regions are faced with the problems of regional comprehensive development, and the research on regional comprehensive development has become a trend in the world. To optimize regional industrial structure and to select and determine scientifically the spatial development strategy of regional industries are the central themes to be solved for the research on regional comprehensive development in the developed regions. This paper proposed the basis for optimizing regional industrial structure, and the main factors of selecting and determining the regional leading industries. Based on this, the paper puts forward the leading industries and the spatial development strategy in Shanghai–Nanjing–Hangzhou area in the future ten or more years. Combined with the situation of Shanghai–Nanjing–Hangzhou area, the paper also discusses some problems of locating superior developing axis to benefit the rational distribution of regional productive forces.

KEY WORDS: regional comprehensive exploitation, regional leading industries, spatial development strategy, superior developing axis

I. THE PROBLEMS OF REGIONAL COMPREHENSIVE DEVELOPMENT IN DEVELOPED REGIONS

Uneven regional economic development is a objective law independent of man's will. Since each region has its own natural superiority and different social, economic, scientific, technical and cultural conditions, as well as different original economic foundation and history of the regional economic development, there are three types named developed region, less–developed region and non–developed region according to the level of their economic development. The so–called developed regions are usually such regions in which there are

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

aggregative economy, population and cities, high level of science and technique, culture and productive forces, high level of gross national product (GNP) for per capita and per square kilometer, the important position in the economic areas system of the whole country or an administrative region. For example, the Ruhr Area, located on the middle west of Germany is a comprehensive industry area which developed from the coal mining industry, now it is a comprehensive industrial area including iron and steel industry, coal and chemistry industry, petrochemical industry, power industry, machinery industry, auto industry, electrical equipment, light industry, food industry and so on. Since the beginning of this century, this area has always been one of the important industrial and economic in Germany and Europe, and also been the important hub of communications. This area has one-third of workers, they produce 86% hard coal and coke, the output of iron and steel makes up 60% to 65% of the country, the output of the automobiles one-third, generator capacity 35%, power 60%. The land area is 1.8% of the country while the population is 9% and the GNP is one-fourth. Besides, the Ruhr Area has six million people and 4,593 square kilometers of land, so the population density is. 1,306 persons per square kilometer on the average, in some places the figure can reach 3,000 persons. In the Area, there are cities closely side by side and the urban district hasn't disconnected obviously.

Another example is Shanghai-Nanjing-Hangzhou area, it is located in the eastern coast of China. There, the land area is 1% of the total area of the country, while the GNP is 15% of the whole country, the gross output value of industry and agriculture is 17%, the gross output value of industry is 23%, the revenue of the area is 16% of the total, the per capita gross national product is 1,787 yuan, 1.24 times more than the per capita gross national product of the whole country (796 yuan). In the area, the cotton yarn output is one-fourth, the chemical fibre output is two-fifths, the output of the television sets, refrigerators, washing machines is 40% respectively, the output of steel and steel products is one-sixth, the output of cutting machine tool, internal-combustion engine and generator is nearly one-fourth respectively. In the area, there are some high-tech industrial districts which are gradually coming into being and rare in our country. There is also the biggest sea port and external trade port Shanghai and port group in the lower reaches of the Changjiang (Yangtze) River and the trunk railways of Shanghai to Nanjing, Shanghai to Hangzhou and Hangzhou to Ningbo linking with the national railway network, a dense road network, a lane along the Changjiang River, the inland river and the coast, and the famous Changjiang River Delta city group.

In these developed regions the high density economy aggregation and high level economy development have obviously brought out the aggregate benefit in the regional economy, and the abundant economic strength built up for a long term becomes the evident superiority on the one hand. But on the other hand, in the developed regions, it is limited and conditional to play the part of the aggregate benefit for the regional economy. Someone unsuitably identifies the economic aggregation with the aggregate benefit and thinks

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

one-sidedly that the more aggregate the economy distribution is, the more aggregate benefit it can get. If someone thinks so and guides it in practice, he may make errors in the development of economy. Here we must learn a lesson from some experiences in the developed regions at home and abroad.

In Germany for example, the industries developed rapidly from the middle of the 19th century, by the second decade of this century, in the process of development and expansion of the industries, communications and cities, in the Ruhr Area and other developed regions, numerous cooperations, enterprises and the department concerned had competitively explored development, they selected and constructed respectively the industrial location, communication lines, ports and residential quarters, and they did their own things on their own way. As a result, these constructions had much confliction of interests. The economic development, the population growth, the resources exploitation and the environment protection were incoordinated and the benefits of economy, society and ecology got worse to worse. At last, first in the large city area and the developed region of the densely located industries and cities, the government of Germany had to launch the research and planning work of regional comprehensive development such as the regional development and management and the relevant spatial readjustment. For example, in the early 1921, the regional management plan had been launched and carried out in the Ruhr Area. The word "regional management" having the same meaning as the territorial development or management, emerged in Germany at first.

Another example is Shanghai-Nanjing-Hangzhou area in our country. In the area, the economic development is over aggregated, the economy and industrial distribution over-concentratedly, especially the industries are over-concentrated in urban districts of the large cities. The area of the large cities in this area is 6.7% of the total area, but the total output value of the industries is 60% of the whole area, the overwhelming majority of the large and middle-sized enterprises, the backbone enterprises and the technique-intensive and capital-intensive enterprises are located concentratedly in the city proper, especially the enterprises of big freight volume, serious pollution, and many labour-intensive traditional processing factories are also concentrated in the urban district, which bring out many problems difficult to be solved: 1) "The three wastes" pollution in the city proper is getting serious and the urban ecology and the housing environment for inhabitants is getting worse. 2) The water supply, electricity supply, gas supply and transportation in the city are in great demand. 3) The technical transformation for the old emterprises is short of necessary space. These facts means if the high-concentration of the economy and industry in the developed regions reach a lopsided degree, the regional superiority for economic development is lost gradually. Therefore, there appear a series of problems such as shortage of lands, water and electricity, traffic jam, environment deterioration, subsidence of some sections, sea water pour backwards and so on. So, for the developed regions, the more developed the economy is, the more properly the relations among population, resources, ecologic

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

environment and economic development is coordinated by means of the regonal comprehensive development, making these four sections in the best form of regional combination, forming a fine circle of the whole region and accelerating the development of the regional economy. Over the last twenty years, many countries in the world have researched the macrostrategy of regional development and management and formulated the policies, and studied the mechanism and measures to readjust and control the regional structure, and the optimal model of regional development and management and made a series of progress. The trend of researching regional comprehensive development has influenced every country in the world, and we must work in concert with it and try hard to catch up.

II. THE READJUSTMENT OF REGIONAL INDUSTRIAL STRUCTURE AND THE STRATEGY OF SPATIAL DEVELOPMENT

The regional industrial structure and the spatial development strategy are two different concepts, they have different implications but close relation. The so-called regional industrial structure refers to the constitution and proportion of the whole industrial system in a certain regional scale, it will answer these two questions: One is what industrial departments can form and exist in each region according to the needs and possibility. The other is what regional constitutional relation exists among these departments: What's the regional leading industries? What industries are related to the leading industries? What are the regional service trade? What kind of role does the development of these three section of industries play in a region? Does it push forward the entire regional economy development or limit and delay the process of the regional economic development? As to spatial development strategy, it means to the leading industries carrying out the overall and long-term countermeasure deployment in the space suiting measure to local conditions. For example, the countermeasure advanced and put into effect in our country is the strategy of industrial structure and spatial development in the whole country scale. That is, in the near future and a fairly long time, the leading industries are the high-tech and deeply-processing industry in the eastern coastal area, the large-scale energy, raw material and processing industrial bases and the industrial transformation in the large and middle-sized cities in the central and western regions. As to the developed regions, rationally readjusting and improving regional industrial structure, scientificly selecting and determining the spatial developing strategy of economic and industrial development, are the important premise and guarantce for bringing about self-sustained growth in regional economy entirety, and for giving play to the comprehensive superiority of regional economy, it is a central problems must be solved in the regional comprehensive research work in the developed regions.

To rationally readjust and improve the regional industrial structure in the developed regions, one has to start with the research on the present problem of the regional industrial structure so as to suit the remedy to the case and seek for the scientific countermeasure. For

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

example, Shanghai–Nanjing–Hangzhou area, since 1949, especially over ten or so years since the reformation, the regional industrial structure has developed coordinately and the whole industrial level is from low to high, but there is still the problems of structure irrationality, such as the weak agriculture base and the basic industry and facilities unadaptable to economic requirement commonly existing in each region in our country. In addition, there are some outstanding problems as follows:

1) Some traditional processing industries with high material and energy consumption, much land and big freight volume have greater proportions in the regional industrial system, although this area is short of minerals, materials and energy, has less land and more people, limited transportation and communication and declining environment quality.

2) The reformation and renewal of the traditional industries and the development of new industries are not ideal.

3) The key industry and its related industry are not determined and vigorously developed according to the local superiority, affected by the old industrial system which is complete in range. So the regional industrial structures remarkably tends to the same and lacks local characteristics.

4) Although the basic raw material industry is weak, the basic facilities are very short, cities and industrial bases in this region vigorously develop petrochemical enterprises, power stations, and port. There is some unnecessary duplicate construction.

5) In every central city and industrial base, the industries don't reflect local characteristics and lack necessary rational division. These facts are disadvantageous to the long–term, steady and high–benefit development of the regional economy.

1. The Rational Readjustment and Improvement of the Regional Industrial Structure in the Developed Region.

First, we must make clear the basis followed in the readjusting and improving the structure, that is, make clear the standard of optimizing regional industrial structure. According to the situation of Shanghai–Nanjing–Hangzhou area, with reference to the experiences and lessons of other developed regions, the basis or standard of this area to be followed must be:

1) The readjustment and improvement of the regional industrial structure must make the best possible use of favorable conditions and avoiding the effects of unfavorable ones, giving full play to the local superiority, make the distribution and usage of local resources (including natural, and social and economic resources) get the best benefit, and realizing the unified beneficial results of economy, society and ecology.

2) According to the principle of local division, making the development of the leading industry lopsided to the sections with relative superiority. According to the demands of combining specialization with comprehensive development, selecting and determining the regional leading industry, at the same time arranging the conveyance industry related to the

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

leading industry and service trade, so as to coordinate and balance the leading and related industries and service trade and promote self-sustained growth in the whole regional economy.

3) Suiting the developing period and economic developing level of different regions. For example, the whole Shanghai-Nanjing-Hangzhou area is now in the period of heavy-chemical industry replacing the light and textile industries, Shanghai is now in the period of the later period of the heavy-chemical industry or the changing period of the high-processing. In the different periods, the optimum model of the industrial structure is also different.

Second, we must make efforts to select and determine regional leading industry, which is the core problem of optimizing regional industrial structure. Going on the premise that the local labour division is the guiding principle in selecting and determining the regional leading industries in the developed regions, the following factors must be considered:

1) It must coordinate with main direction and task of the local economic development, that is to say, the regional leading industry selected and determined must reflect the main direction and task of the local economy.

2) The abundance of available resources including the natural, social, economic and technical resources.

3) The original technical base and skilled level of technique.

4) The present and future situation of demands for markets and capacity of markets.

5) The rational degree of the economic scale.

6) The coordination and relation among the industries in the area.

2. Reasonable Selection and Determination of the leading industries in Shanghai-Nanjing-Hangzhou area

In the system of the regional division of the country, the main direction of the economic development of Shanghai-Nanjing-Nangzhou area is to give full play to the internal and external radiating fan-shaped hubs, to build into the largest core economic region in China, and the processing industrial base characterized by advanced, high-grade, high-precision new products and foreign trade center, to form the important personnel training center and information center of China. As a core component part of the eastern coastal area in our country, the main local superiority and potentiality of this area are as follows:

1) The geographical location superiority. This area, located in the lower reaches of Changjiang (Yangtze) River is the exit of the Changjiang and Qiantang rivers systems to the sea, and also the gateway of these two river valleys for opening to the outside world. It is in the hub of connecting river and sea, China and other countries and the forefront of the development of the Changjiang River, especially, the area is the link-part of the "T" shape axis for the coastal opening region and the industrial area along the Changjiang River, and

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

is also the outpost of opening to the outside world and the base for transferring techniques to inland.

2) The abundant technical and economic strength. The area is now the important industrial and export base and financial center in our country as well as the area with advanced science, technique and culture.

3) High urbanization and comparatively developed communication and transportation. In the area, the proportion of urban population and city density are high in our country and the organic connected city and town system consists of many towns, and large and middle-sized cities. In this area there is the largest sea port Shanghai and the biggest river port Nanjing, and the developed communication network consisting of railways, river channels and highways.

4) The natural condition richly endowing by nature for agricultural development. It is a comprehensive agricultural area with high-level intensive farming.

5) The abundant labour resources, better cultural quality and stronger commodity economy sense.

6) Rich tourist resources.

Therefore, the selection and determination of regional leading industry in Shanghai-Nanjing-Hangzhou area must accord with the following demands: actively adopting new technology to transform the traditional industries, developing newly industries, developing the knowledge and technology-intensive industries and newly high-grade consumer goods industries, actively introducing the foreign advanced techniques, making the area become the important base of absorbing, digesting, extending and developing new technique at home and abroad. In the future ten years or so, the regional leading industries should be the following industries: advanced technique equipment industry, high-grade and newly consumer goods industry, high-quality basic raw material industry, foreign trade, finance and insurance, information, real estate industries and so on. At the same time, we must well coordinate the relationship among adopting new techniques to transform the traditional industries and crafts, opening up the newly industries and developing energetically the tertiary industry.

If we correctly select and determine the regional leading industries, the problem about spatial development strategy will be solved easily. The establishment and development of the leading industries must be conducted in concrete areas. The regional leading industries must be located and concentrated in the area with advantageous conditions and remarkable superiority. In Shanghai-Nanjing-Hangzhou area, according to the difference in objective conditions and developing level among various small areas, comparing geographic position and communication condition, economic strength and the scientific and technical foundation, before the year 2000, the main development areas should be doubtlessly firstly Shanghai, Nanjing and Ningbo as well as Suzhou, Wuxi and Changzhou, then Zhengjiang, Yangzhou, Nantong, Jiaxing, Shaoxing and Huzhou.

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

III. THE OVERALL ALLOCATION OF REGIONAL PRODUCTIVE FORCE

The reasonable allocation of productive force is always treated as a central content in the research, planning and implementing of the regional comprehensive development at home and abroad. This is because whether the spatial allocation of industries in an area is reasonable or not, has a overall and long-term influence on the development of the regional economy, and relates to the macro-benefit of the regional economic development. In some developed regions of our country, various contradictions appears incessantly and trends to be more severe in the relations among the economic development, population growth, resources utilization and environmental protection. One of the most important reasons is the over-concentration of the productive force distribution in a region, there exists very obvious regional difference.

The implementation of the reasonable distribution of the regional productive force in the developed regions is involved with many aspects, many problems have to be solved by studying. As to Shanghai-Nanjing-Hangzhou area, the first thing is to select and set up a key developing axis correctly and well arrange the regional division among each central city in the area. In the process of economic development of a country or a region, the fundamental tendency of spatial development process is from point development, axis development to the development of city and town network system. Generally, the development strategy implemented in the first and second stages of regional (or national) industrialization development is the key development strategy. That is, in a certain time, the key regional direction of the productive force distribution must be determined. Here, the key region can be some key developing cities as the strongpoint of regional development, named, strongpoint development. It also can be the area with great potentiality and perspective as well as better geographic position, resources and economic foundation. In the area the linear basic facilities (the important traffic trunk line, high tension transmission line, water supply line) link the city and region to form developing axis, making various cities and industrial points develop along the axis, named axis development. The advantages to carry out the point and axis development strategy are:

1) It can conform to the demands of each industry to aggregate to points in space and give play to the best benefit of aggregation effects.

2) It can realize the best spatial combination of industrial distribution and linear basic facilities to make the main traffic trunk line, energy and water supply line correspond with the distribution of the chief developing towns, industrial and mineral districts in the region.

3) It is beneficial to the connection between cities and towns, regions, cities and villages, and promotes the specialization and coordination of economic development between regions, and cities and villages, to bring about the formation of organic regional economic network.

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

Considering that Shanghai—Nanjing—Hangzhou area is in the heavy—chemical industry period, and the factors such as the geographic position, resources and economic foundation, the potentiality and the perspective in this area, for the overall allocation of the productive force, the deploy of axis development must be on the basis of the original foundational distribution pattern " three lines" (Shanghai to Nangjing, Shanghai to Hangzhou and Hangzhou to Ninbo) and "three points" (Shanghai, Nanjing and Ninbo), extend to the two wings along the Changjiang River and the coast (Hangzhou bay), gradually develop to the "Z" shape pattern, making it become the key developing axis for the productive force distribution in this area in this century or a longer period. The main reasons are:

1) Along the lower reaches of the Changjiang River in the north of this area, there have been many central cities such as Shanghai, Nanjing, Zhenjiang, Yangzhou and Nantong, their economy has been fairly developed.

2) The Changjiang River has huge shipping potentials, there are bank resources for building the ports along the river. If we give full play to them and carry out comprehensive water—land transportation, the overall freight volume in the area will be raised.

3) There are sufficient water source and greater, ability of purifying water, which are favorable to setting up factories.

4) To extend to the Hangzhou bay especially the north bank of the bay, can not only reclaim land from the sea, save valuable land, save fresh water by means of cooling sea water, but also improve ecologic environment using the superiority of air diffusion and sewage diluting capacities in the seashore, and also solve the problem of energy supply by means of the cheap sea transportation, open up the international markets and develop the export—oriented economy by means of the deep—water sea port and exporting products processed with imported raw materials.

The reasonable regional division for the industrial development of each central city in Shanghai—Nanjing—Hangzhou area must accord with the principle of making the best possible use of favorable conditions and avoiding the effects of unfavorable ones, giving full play to the local superiority, making specialization division and coordination, forming the comprehensive superiority of the whole area, on the basis of the geographic position, resources superiority, and developmentpotentiality, economic foundation and strength, the perfected level of urban basic facilities, urban capacity (including population scale, the aggregation limits for industry, building, communication, post and telecommunications industries, trade and service). In the process of selecting the leading industries for each city and determining the reasonable regional division among them, we must greatly resume and develop the functions of each central city as the financial, informational and trade centers, actively develop the tertiary industry so as to push forward and promote these central cities to change exactly from the original simple industrial base to stronger economic centers which can promote regional economic development.

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

REFERENCES

[1] 张蕴岭等.西欧的区域发展. 北京: 中国展望出版社，1988.

[2] 陆大道. 区位地理讲座第五讲：潜力理论与点轴系统. 地理知识, 1986(12).

[3] 胡序威. 京津唐地区发展方向初步设想. 见: 国土规划与经济区划，上海: 华东师范大学出版社，1986.

© 1994-2010 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net