

Research on Rapid Development of Spatial Structure of Cities and Towns' Economy in China's Old Industrial Base: Taking Liaoning Province for Example

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Abstract: Research on development situation of spatial structure of cities and towns' economy in China's old industrial base is the incarnation of important thought about completely building relatively prosperous society and implementing "three representatives", is the new breakthrough of solving the issue on countryside, agriculture and farmer, and is the needs of stabilizing political power in basic level and sustainable development. The spatial structure of cities and towns is product of cities and towns' forming, developing and interaction under certain social and economical development level. In terms of the regional level of city, the spatial structure of cities and towns has two forms, which are external spatial structure and internal spatial structure. The former one is to study the spatial position of cities and towns with regional background and to reflect the spatial clustering scale of interaction relationship among cities and towns; the latter one is to explore the physical features of cities and towns and the proportion relationship, function ties and spatial composition among all the parts of cities on the basis of city-level. This paper takes close analysis on the development situation of Liaoning's cities and towns' economy in China's old industrial base from the perspective of external spatial structure, then dissects the major problems and causes of its existence, finally puts forward with solutions and

suggestions on speeding up spatial structure development of Liaoning's cities and towns' economy.

Key words: cities and towns' economy spatial structure speeding up development

I. The Situation of Economical Space Structure of Cities and Towns in Liaoning province

i. The spatial structure of cities and towns' economy is dispersed.

According to relevant statistical figure and total population grouping in all cities in 2005, 8 grades' spatial structures have been formed in cities and towns across Liaoning. There are 2 metropolis (Shenyang and Dalian), 4 megalopolis (Anshan, Fushun, etc), 22 big cities (Benxi, Dandong, etc), 3 medium-sized cities (Tieling, Chaoyang, etc), no small city, 27 county towns, 658 designated towns, 376 townships, among which the population scale in central Liaoning is larger than that of western Liaoning and the population scale of western Liaoning is larger than that of eastern Liaoning.

ii. The administrative level structure of cities and towns' economy is like pyramid.

In terms of administrative level, the existing

Table 1 Statistical Table of Administrative Level Structure of Cities and Towns in Liaoning

Level	Number	Name of cities and towns
Vice-provincial level	2	Shenyang, Dalian
Municipal	12	Anshan, Yingkou, Liaoyang, Fushun, Benxi, Dandong, Tieling, Jinzhou, Fuxin, Panjin, Chaoyang, Huludao
County level	17	Xinmin, Wafangdian, Pulandian, Zhuanghe, Haicheng, Donggang, Fengcheng, Linghai, Beining, Gaizhou, Dashiqiao, Dengta, Diaobingshan, Kaiyuan, Beipiao, Lingyuan, Xingcheng
County town	27	Omission
Designated town	658	Omission
Township	376	Omission

cities and towns' network system in Liaoning can be divided into 6 grades, namely, vice-provincial level city, municipal, county-level city, county town (including 8 autonomous counties), designated town, township (including 77 national townships). See table 1:

iii. The development trend of cities and towns' economy is that the central part is faster than the eastern part and the eastern part is faster than the western part, furthermore, the development of cities and towns along main transportation routes and coastal

area is faster than that of interior land.

With respect to gross domestic product of 2005, there were 23 counties (county-level cities) whose GDP were over 4.88 billion yuan, among which 12 counties located in central part; there were 20 counties (county-level cities) with GDP ranging from 1.81 billion yuan to 4.88 billion yuan, among which 3 counties located in central part, 7 counties located in eastern part and 10 counties located in western part; there was only 1 county (county-level city) with GDP ranging from 0.78 billion yuan to 1.68 billion yuan, lying in eastern part. See table 2:

Table 2 Statistical Table of Gross Domestic Product Distribution of Cities and Towns in Liaoning in 2005

Gross domestic product (hundred million yuan)	Total number	Central part	Eastern part	Western part
100.3-266	8	Haicheng, Wafangdian, Zhuanghe, Xinmin, Liaozhong county, Pulandian, Dashiqiao	Donggang	
48.8-99.9	15	Gaizhou, Xiuyan, Taian, Liaoyang, Dengta	Fengcheng, Kuandian, Kaiyuan	Beining, Suizhong, Linghai, Heishan, Panshan, Dawa, Changtu
31.9-48	7	Faku	Benxi county, Tieling county, Huanren	Yixian, Beipiao, Lingyuan
18.1-31.7	13	Kangping, Changhai	Qingyuan, Xifeng, Fushun, Xinbin	Jianchang, Xingcheng, Kazuo, Fuxin county, Zhangwu county, Jianping, Chaoyang county
7.8-16.8	1		Diaobingshan	

In 2005, the economic total amount in central cities and towns accounted for 58.6 percent of provincial total, while the eastern part accounted for 21.3 percent and the western part accounted for 20.1 percent. In terms of per capita GDP of urban population, the central part was 18122.5 yuan, while the eastern part was 10776.7 yuan and the western part was 6690.8 yuan. It is obviously that the level of per capita GDP in central part was higher than that in eastern and western part. The per capita GDP in central cities and towns was 1.68 times and 2.77 times as much as that in the eastern part and western part respectively. Among the financial income of the county-level governments across the province, the central cities and towns accounted for 53 percent, while the eastern and the western part accounted for 25 percent and 22 percent respectively. What can be known from materials above is that the development level in central cities and towns is noticeably higher than that in eastern and western part, therefore, the central part has been the main growing point of provincial county's economy.

The spatial structure distribution of Liaoning's cities and towns is composed by 3 parts: central, eastern and western part. The central county (county-level city) includes 15 counties subordinated to Shenyang, Dalian, Anshan, Yingkou, Liaoyang; the eastern county (county-level city) includes 13 counties subordinated to Fushun, Benxi, Dandong, Tieling; the western county (county-level city) includes 16 counties subordinated to Jinzhou,

Fuxin, Panjin, Chaoyang, Huludao. The megalopolis and big cities in Liaoning province are mainly distributed in plain area, which has a semidiameter of 100 kilometers with Shenyang as its centre. It is central part of Liaoning province, gathering 5 municipals, 5 county-level cities and over 200 towns. It has been densely concentrated area of Liaoning's cities and towns.

Liaoning has tight highway and railway net, and the development of most cities and towns rely on the tight highway and railway net. Currently, among 14 municipals, 12 scatter along the railways of Jingha, Shenda, Shendan, etc; 7 counties (county-level cities) scatter along Shenda railway; 6 counties scatter along Shenshan railway and 12 counties (county-level cities) lie in coastal area. The three railway lines take on a shape of coordinated development of counties' economies. In terms of economic total amount of all the counties in Liaoning, 7 counties along Shenda line account for 39.4 percent, 6 counties (county-level cities) along Shenshan line account for 14.3 percent, 12 counties (county-level cities) in coastal area account for 40.7 percent. Particularly, counties such as Wafangdian, Pulandian and Zhuanghe subordinated to Dalian, Haicheng, Taian subordinated to Anshan, show strong development momentum, as the above 7 counties account for 33.7 percent of counties' economic total amount across the province.

iv. Small cities and towns have basically

formed scale.

Currently, the quantity and scale of small towns in the province have practically met the standards. There were 658 designated towns by the end of 2005, with a total coverage area of 85489 acres and per capita coverage area of 237.1 square meters. The coverage area of market towns is 25715 acres, with that of per capita 318.4 square meters. The designated towns across province have 1.1336 million households and 3.605 million people; the market towns have 0.2226 million households and 0.8076 million people, accounting for 15.1 percent and 3.4 percent of provincial total respectively. By the end of 2002, there were 3 experimental counties and 222 experimental towns (195 designated towns and 27 market towns) in the construction of provincial industrial cities and towns, with 27 experimental towns belonging to Ministry of Construction, 77 provincial-level experimental towns, 30 city-level towns (62 designated towns and 26 market towns). There were 562 designated towns that had finished the plan-adjustment, accounting for 93.4 percent of provincial total; there were 317 market towns that had finished the plan-adjustment, accounting for 79.8 percent of provincial total.

II. The Major Problems and Causes of Development in Liaoning's Cities and Towns' Economical Space Structure

i. The cities and towns have small population scale, unbalanced population distribution, unobvious status of centre town, unfulfilled

function, and lack of due attraction and influential power.

With respect to population scale, among the countrysides and small towns of Liaoning province in 2004, there were less than 2.9 percent of towns with population over 20 thousand, 89.2 percent of towns with population below 10 thousand, 68.8 percent of towns with population below 5 thousand, therefore, the population scale of cities and towns was rather small. The population distribution of Liaoning's county region is unbalanced. The average population of provincial county region was 0.5401 million, while the most populous county (Changtu) was 1.122 million and Changhai County had the lowest population of 80 thousand. There were 22 counties with population scale larger than the average level, accounting for 50 percent of provincial total. The populous counties are mainly distributed in central eastern developed area, while the western backward counties have sparse population. There are not only historical but also natural geographical reasons. Since the central eastern area is flat land, it has been population gathering place from ancient times, while the mountainous western area is sparse population.

The central towns' status in Liaoning's county region hasn't fully played its role, as the comprehensive function isn't strong and the attraction and influential power are weak. The central towns in eastern Anshan and Dalian develop rapidly, exerting gradually agglomeration and diffusion function and

promoting the development of surrounding cities and towns; the western area such as Chaoyang, Huludao, Fuxin, etc where the economic development of central towns isn't sharp and the important roles of agglomeration-diffusion effect on regional development aren't recognized, have neither remarkable status or role of the central town nor regional advantage or features. The weak attraction for advanced talents and technology, unrealized upgrading of industry resulted in the slow development of the surrounding cities and towns. Failing to receive the transfer of technology, industry and talents from central towns make some towns still very backward.

ii. The regional gap of cities and towns' development is big.

The distribution and development degree of cities and towns in the province are basically high in southeast and low in northeast. That is to say, the south and eastern coastal area have high level and good performance; while the areas in northwest, because of transportation condition, geography position and policy etc, have investment shortage, and the advantage resources are not fully made use of and developed. Besides, the imperfect infrastructure construction, slow steps in village industrialization, urbanization and modernization result in the unbalance of economic development among cities and towns. In detail, its unbalance is that central part gathers 39% of county area population and creates 58.6% of county area production value; while those data in the east

part are 24% and 21.3% respectively and in the west part are 37% and 20.1% respectively. Besides, there is also unbalance of economic development among the counties. In terms of economic total amount, the biggest county (county-level city) (GDP is 26.6 billion yuan in Haicheng) is 16.2 times as much as the smallest one (county-level city) (GDP is 1.645 billion yuan in Diaobingshan). In terms of average GDP, the biggest county (county-level city) (average GDP is 27.41 thousand yuan) is 6.8 times as much as the smallest one (county-level city) (average GDP is 4.017 thousand yuan in Jianchang). This gap is also the potential space of economic development in county area.

iii. Human resources in village didn't get fully developed.

In recent years, large amount of rural population moved to cities and towns and promoted the economic development, but there still were a lot of dual people, who left the soil but didn't leave the village. 75% of whole provincial 11 million village labor forces are engaged in agriculture, but only create 46% of farmers' income, up to 91% farmers have never been subjected to professional training. The ability of absorbing village labor force by private enterprises is not strong. The private enterprises in the whole provincial 44 counties (county-level city) only absorb 1/3 of the village labor force, and the personnel set employment average for every business enterprise are less than 5. It is far away from the object that cities and towns absorb largely the rural labor force

and realize rural economy's scale operation. Although there are many rural labor forces, most of them are original labor forces that haven't received special training or education, so that the labor forces in cities and towns will not be absorbed because of low technical ability.

iv. The quality of urbanization needs to improve further.

The urbanization level of Liaoning province has already exceeded 50%, ranking the front places across the country, but village urbanization quality is not high. The population in the coverage area of designated towns are only 3.605 million, making up 8.6% of total population in the province, 15.1% of the population in villages and towns, ranking the tenth place in the country. The universal rate of running water in villages and towns is 38.4%, ranking the 20th in the country; the area of sub-advanced road owned by per person is 8.8 square meters, ranking the tenth in the country; the construction investment of public facilities by each person annually is only 61.7 yuan, ranking the tenth in the country; the average area of residential usage is 15.71 square meters, ranking the 21st in the country. Low-quality urbanization of village not only restricts the gathering of rural industries, but also restricts the urbanization of rural residents' life. The quality of urbanization is higher in mid-south region and the areas along the main transportation lines in Liaoning, meeting the average level of our country, while

the speed of urbanization in the western backward region is slow, needing to improve further. Moreover, the growth speed of urbanization in the whole province is slow-moving. During ten years, the urbanization rate of the whole province only raised 3.38% and averagely raised 0.34% annually.

III. The suggestions of accelerating space structure development of Liaoning's cities and towns

i. Preferential development of model towns, particularly constructing center towns.

There have been 658 designated towns in Liaoning in 2005, and it is not possible to go toward together and develop synchronously when lacking in construction funds within state and province. Therefore, we should improve the quality of small towns, expand the scale and speed up urbanization. Some model towns and center towns with location advantage and good economic foundation should be chosen to be developed particularly, exerting radiation effects.

For speeding up the step of small towns' construction, we should preferentially develop model towns and particularly construct center towns, form the moderate development structure among county towns, center towns and general towns. Every county (county-level city) should grasp one or two center towns with better foundation, location and developing prospects, stressing center towns' service function and radiation function. Finally the center towns are made to have regular scale,

economic power and be able to drive their periphery counties and towns' economic development. The guideline of choosing stress towns and center towns can be followed by: firstly, the system of cities and towns should be programmed; secondly, the statistics data should be scientific. We should particularly develop the region with fastest growth speed of GDP or with the highest rate of population flowing; choose county-level cities and towns with better location and foundation and with bigger development potential to grow featured local center cities; other cities should make full use of their respective advantage in location, transportation, tourism and special resources, developing featured industries with market competition power, enhancing the collecting and radiating functions of county-level center cities and promoting healthy development of county areas' urbanization. Therefore, we should positively develop central cities around the big cities like Shenyang, Dalian and Anshan etc. These cities' economy develops faster, and industries transferring and city population reposition supply rare opportunities for their periphery small cities and towns' development. So we should bring these small cities and towns, as periphery cities, into the total program of big cities' development and give special support. As for the central towns of relatively advanced areas in the middle and south of Liaoning, which have good economic power and foundation, we only need to invest a small proportion, then the construction and development of small cities and towns will be

speeded up. Finally, we can choose a few small cities and towns with good foundation and feature to support as model towns in northwest and east Liaoning.

ii. Speeding up counties' (county-level city) transition towards small cities in the process of urbanization.

Research shows that small cities, with population between 100 thousand and 200 thousand, is suitable for industry collecting, and is advantageous to the kit of function and optimization of the residence environment. There are many big and medium-sized cities and small cities and towns in Liaoning, but there are few small cities whose population scale is between 100 thousand and 200 thousand. Developing small cities is the important way of village urbanization in Liaoning. The development of 44 counties (county-level cities) in the province is added to construction key points of the whole provincial program, and they are backed up in terms of infrastructure, industry development and financial support to develop population scale between 100 thousand and 200 thousand. Then 5 million peasants will be citizens, which will exert big impact on the economic and social development in Liaoning province.

iii. Playing a municipal radiation role and promoting the integration of provincial cities and counties.

The gap exists in the development of cities and counties, although there is harmonious trend in the relation of whole provincial cities

and counties, it is necessary to further promote the integrated development of cities and counties to make the duality structure even more harmonious and gradually approach the unification of duality structure. The integration of cities and counties is a social, economic, cultural and ecological process which also is this process's final object. The effective attraction and strong radiation of central cities toward the rural areas make the reliance between the central cities and the periphery rural areas consumedly strengthened and make the relation between cities and counties more diverse and close. For example, in Dalian, counties and towns in the rural area with poor transportation have bigger gap with central areas in every aspect; and in these areas, the government should give more policy support, on the other hand, the infrastructure construction of transportation and communication should be strengthened to supply these counties and towns with good support platform for improving their urbanization level and developing non-farm industries.

iv. Developing characteristic and advantageous industry and pushing high and new technologies of agriculture industry.

The cities and towns' development need to rely on local area's resource gift and develop comparative advantage to choose industries. The cities and towns rich in natural resources can develop industries based on local resources; the ones rich in agriculture resources can develop modern agriculture; and those rich in

natural and humanity resources need to work hard for exalting the additional value of natural products. In recent years, many counties and towns began to develop characteristed private economy and obtained good effects. Characterised industries include the industries formed by the exploitation and usage of local special resources, such as medicine and chestnuts in east mountainous areas, sea products in the coastal areas and jujubes and millet in Chaoyang; industries formed by processing and manufacturing of traditional craft, such as smoked chicken in Goubangzi; and some cluster industries with certain size formed by simplest processing , such as clothing in Xiliu and cases in Nantai.

In addition, the development of provincial agriculture industries need to make use of high and new technologies, grow new products, decrease pollution, plant agricultural products meeting international standard, facing international market, develop outside-oriented agriculture and realize agricultural industrialization. Several aspects below can be included for developing agricultural high and new technology industries. Firstly, high and new technologies results need to be introduced continuously in every field and every segment of agricultural production and management to make products with intense introduction of science and technologies, high additional value and good market prospect. Secondly, we must continuously pursue production's scale, standardization, professionalization, localization, the enterprising of management and the

integration of operation. Thirdly, we should aim at sustainable development and safe survival of human beings, trying our best to substitute advanced technologies for partial resources, protecting ecological environment and realizing green production. Set up developing-oriented agricultural structure, namely developing goods production and raising the rate of various agricultural products, improving the quality of agricultural products, making every effort to launch the planting of good agricultural breeds, developing special industries suited to various agricultural products, making every effort to develop domestic and international trade to transform undeveloped rural agriculture into modern delicate agriculture which can create foreign exchange, so as to increase local income.

v. Standing out the market corpus position of the privately owned enterprises and fostering the new growth points of the cities and towns' economic development.

By the end of the "Ninth Five-Year Plan", more than 95% of township enterprises in Liaoning, which basically became to be private enterprises with clear property rights, have completed the reform of the property right system, and the private economy has poured the new vigor and vitality into the cities and towns' economic development.

Liaoning Province should help private enterprises to develop based on their own economic development features, with focus on the following points:

We have to simplify the system of market access and to effectively implement the national treatment principle; any fields that allow foreign capital to enter should allow the entry of private capital, so that private enterprises could have equal opportunities to compete with foreign-funded enterprises.

We must establish and perfect the unified counseling system of privately owned enterprises; such as setting up small and medium-sized enterprises (SMEs) banks and joint-stock banks, and establishing central, provincial and county (city) small and medium-sized private enterprise development fund and credit guarantee fund. Our main purpose is, through the small and medium-sized private enterprise development fund and the credit guarantee fund, to handle the special loans or credit guarantees for the promising high-tech enterprises or the small and medium sized private enterprises, which are in temporary financial difficulties as a result of natural disasters or economic fluctuations.

We should set up professional SMEs management organizations and provide privately owned economy with development and planning, technology and information, diagnosis and advisory services.

We could, by means of the establishment of industrial parks and development zones, offer infrastructure and public technical measures to privately owned enterprises and promote them to achieve scale operations, and we could also drive the private economy to develop rapidly by virtue of bringing the region agglomeration

effect into play and taking advantage of the enterprises cluster.

We should guide the privately owned enterprises to positively face the domestic and overseas markets.

We need to implement the strategic upgrading and transformation of the private enterprises.

Currently, most of the privately owned enterprises in Liaoning Province are mainly labor-intensive industries, of which the technological content and added value of their products are relatively low, and of which the competitiveness is insufficient, then, the extensive management shortcomings have been exposed. Therefore, in the face of the present development status of the private enterprises in Liaoning, we should focus on the growth of capital and technology-intensive industries, on the changes of the extensive operations, so to bring about the strategic upgrading and transformation. With regard to the provincial economic development of cities and towns, the counties, in which urban economy has been better developed, have a group of large-scale private enterprises in their leading industries. Moreover, the privately owned enterprises give obvious impetus to the forming of industrial chain, and to the urban economic development.

vi. Fully opening to the outside world and intensifying investment efforts.

It is not enough for cities and towns' economy to develop by itself, it needs help from outside world, and we should enforce the

strategy of "going outside, inviting inside; breaking out, bringing in", and intensify efforts of attracting investment. We have to continuously expand the fields of utilizing foreign investment, and to take flexible and diverse investment measures of door-to-door business, business to business, intermediary business, online business and projects investment, so as to absorb extraterritorial projects, capital, technology and personnel to enter. To promote economic development of cities and towns, Liaoning should draw on the experience of advanced region, strengthen the infrastructure and related policy proposals, invite foreign investors to come to investigate and provide preferential investment policies for them, and attract the introduction of projects, capital, technology and expertise.

vii. Developing education and enhancing the competitiveness of human capital in cities and towns.

Through learning and innovation to enhance the ability of development is an important characteristic of city-town system in new era, as well as a significant manifestation of vitalizing the county by science and technology. Vigorously to develop basic education and vocational training and to accumulate the human capital are the major approaches of learning and innovation. Education is the major means of bringing up human capital. Growing education and personnel training in the county region can increase the number of the town's talents and attract foreign capital

and talents to enter, and also can promote the economic accumulation and knowledge exchange. The improvement of workforce quality in cities and towns will inevitably allure well-known enterprises to invest and attract talents and technology, so as to enhance economic efficiency. Thereby, we must recognize the importance of human capital and regard education as cities and towns' economic development focuses.

viii. Paying equal attention to economic development and environmental protection and establishing "Garden Town".

Strengthening the conservation of environment and nature is the important measure to ensure sustainable economic development. At present, in addition to the differences of development degrees, there are great gaps of development between small towns in other regions and abroad and those in Liaoning. The biggest disparities are poor infrastructure, low quality of environment, low levels of service and management. Even those small towns which have good infrastructure still exist serious problems of "dirty, chaotic and poor". To change this situation, Liaoning has to take measures, not only of administrative and professional management and more importantly, of the social management that all citizens are conscious of participation. Within communities, we should actively promote resident autonomy bodies for self-management, to start from one family, strengthening health management, environmental management and public order

management, establishing modern transportation, communications, hospitals, schools, shopping centers, entertainment venues and other infrastructure, simultaneously paying special attention to the protection of the ecological environment, then we can build a "nature-based" clean beautiful "Garden Town".

ix. Reforming the household registration management system in small cities and towns.

Household registration management system has been the key factor of imposing restrictions on China's rural population getting into cities and towns. At present, there are still limitations being implemented to prevent farmers from settling in the towns, and some places are still charging a certain number of town compatibilization matching fees, and still strictly control both rural population to change from rural to non-rural and migrant labors to move into cities and towns. The inertia of management system and interests in sectors seriously hinder the reform of the household registration system, so the peasants have no possibility to settle in large and medium-sized cities. Liaoning Province should learn from the advanced experience of Europe and the United States, reforming the census register management system in small towns, gradually relaxing and removing the disparity between the rural and urban household registration account, and establish a management system that registered permanent residence according to habitation. As long as we have a steady income, stable residence, stable

employment, and living in a place for a period of time, we can settle down at that place.

x . Running cities and towns as capitals.

A town is the center of county's economy, politics and culture, and it is also the gathering center of social production factors. The development and prosperity of cities and towns will bring about county's economic prosperity.

Running cities and towns as capitals is derived from the development process of market economy, which may capitalize all production factors, such as county planning, ports, credibility, information, location and franchising rights. These potential county capitals must be capitalized through the market mechanism, and only by capitalization can these capitals realize their own value and the value-added. In fact, the cities and towns' capital operation is the process of capital transformation, development, creation and operation. For local government, the administrator of cities and towns, capitalization is to convert and develop capitals which are formed by government engaging in city construction for many years, and is also to activate the urban existing stock assets through market. In the process of cities and towns' transformation and development, there are many resource capitals requiring cultivating, developing and creating.

Running cities and towns as capitals also includes realizing urban environmental values. We must treat the environmental construction as an important potential capital, and accelerate the land value by improving the

environment and enhancing the quality of urban environment. In addition, we have to synthetically consider the close ties between cities and towns construction and development and the surrounding environment, regarding the environment construction and the rational allocation, utilization and protection of resources as prerequisites for sustainable development of town economy, but we have to avoid a blind pursuit of short-term interests. Based on the situation of county economy in Liaoning, we can find that the counties in Liaoning have large stock of assets. Supposing that we put these assets onto the market, and carry out market operations or optimize portfolios through market, these assets will be transformed into the active production elements, which would invisibly raise the value of urban capital and allure more investment.

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