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Coordinated Industrial Development of Changchun and Jilin in Chang-Ji-Tu Pilot Zone

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Abstract

With the acceleration of developing process of Chang-Ji-Tu pilot zone, the economic exchanges between the two cities of Changchun and Jinlin become more and more frequent. The issues of integration and industrial coordination of Changchun and Jilin have come into the public concern. Ways and corresponding strategies to execute the industrial coordination of Changchun and Jilin are brought up on the basis of quantitative analysis in the status of industrial development as well as being clear about the obstacles in industrial development of the two cities.

Key words: Changchun and Jilin; Industrial; Coordination

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INTRODUCTION

Currently, the regional industrial coordination has become the trends of economic and social development. Single inter-city competition which gradually replaced the regional competition in urban agglomerations has become the modern model of regional development in the coordination across administrative regions. “Guangfo” in Guangzhou Province, “Changsha-Zhuzhou-Xiangtan City Group” in Hunan Province, and “Shenyang-Fushan Integration” in Liaoning Province are the successful exploration and practice of regional integrations within province Scholars also explored coordinated industrial development in regional integration from different aspects. HU Jiewu *et al.* (2012) analyzed the effects of corporate cross-regional mergers and acquisitions to regional industrial structure and economic growth. NIE Xiaotao (2012) thinks that the convergence of inter-city industry impairs the overall competitiveness of metropolitan area. The competitiveness of the metropolitan area can be enhanced by integrating the distributed resources in the region, carrying out industrial division of labor and cooperation with specific targets, extending industrial chain and achieving specialization of production. Besides, the institutional barriers as well as the path of integration are also in the focus of the scholars (Wang, 2007; Lü, 2004; Xue, 2004; Peng, 2009; Lin, & Chen, 2003). From the aspects of coordinated industrial development in Jilin Province, PIAO Yinzhe and JIN Zhaohuai (2009), WANG Rongcheng and ZHANG Yunyi (2008) have respectively taken Yan-Long-Tu region of Yanbian Korean Autonomous Prefecture and nuclear region in Jilin Province for examples. The characteristics, as well as strategies of implementation and integration in coordinated development of regional industry are discussed and proposed respectively on the basis of analysis of characteristics and problems in regional industrial development, in order to explore the function and mode of regional coordinated industrial development in enhancing the economic competitiveness of less developed areas.

In the background of regional cooperation, the coordinated industrial development of Changchun and Jilin has gradually come into the spotlight. It will realize the optimization of industrial structure as well as rational distribution of industrial space in central Jilin Province and even in the whole province based on bigger and stronger industry in the two cities; it will also realize the re-allocation of production factors as well as adjustments

and forming new capital organization and technical organization by the law of industrial development across space, region, industry and ownership, in order to form the large enterprises and enterprise groups centered industrial structure. To play the function of agglomeration of Changchun and Jilin in order to fully implement the national strategies of Chang-Ji-Tu pilot zone and revitalization in the northeast.

1. DATA AND METHODS

1.1 Definition on the Study Area and Data Specification

The study area is the urban area of Changchun and Jilin, as well as the 9 countries under the jurisdiction of the cities such as Jiutai, Dehui, Nongan, Yushu, Huadian, Jiaohe, Shulan, Yongji and so on. All the data mentioned in the study is from "Changchun Statistical Yearbook 2006", "Changchun Statistical Yearbook 2012", "Jilin Social and Economic Statistical Yearbook 2005", "Jilin Social and Economic Statistical Yearbook 2009", "Jilin Statistical Yearbook 2006", and "Jilin Statistical Yearbook 2012". Due to the little output of ferrous metal mining industry, non-ferrous metal mining industry, and other mining industries in Changchun, as well as tobacco industry, educational and sports goods, and waste resources and materials recycling and processing in Jilin, so the location quotient and agglomeration index measured in this study only refer to 37 industries of the 40 industries involved in the Yearbook.

1.2 Measurement Methods

1.2.1 The Formula of Location Quotient and Agglomeration Index

$$LQ = \left[d_i \Big/ \sum_1^n d_i \right] \Big/ \left[D_i \Big/ \sum_1^n D_i \right] \quad (1)$$

In which LQ represents the location quotient of industry i to its higher-level region, d_i represents the employment or gross output of industry i. $\sum_1^n d_i$ represents the sum of employment or gross output of n industries in the region, D_i represents employment or gross output of industry i in its higher-level region. $\sum_1^n D_i$ represents the sum of employment or gross output of n industries in higher-level region.

$$S_{it} = (\sum_{j=1}^m q_{ijt} \Big/ \sum_{j=1}^m q_{ij0})^{1/t} - 1 \quad (2)$$

$$S_{ijt} = (q_{ijt} / q_{ij0})^{1/t} - 1 \quad (3)$$

$$A_{ijt} = S_{ijt} / S_{it} \quad (4)$$

In the equations above, (0-t) refers to the selected time period of industrial Agglomeration Index. In this period, to study n industries in m regions, in which the initial and ended gross output of industry i in region j during the selected period are q_{ij0} and q_{ijt} respectively. S_{ijt} is the average growth speed of gross output of industry i in region j. S_{it} is the average growth speed of gross output of the industry i in region j's higher-level region during (0-t) period. A_{ijt} in the equation above is the Agglomeration Index to the industry i in region j.

The criteria are as follows: If location quotient LQ<1 and agglomeration index A≥1, the industry is at a formative stage of comparative advantage industry; if location quotient LQ≥1 and agglomeration index A≥1, the industry is at a growing stage of comparative advantage industry; if location quotient LQ≥1 and agglomeration index A<1, the industry is at a mature stage of comparative advantage industry; if location quotient LQ<1 and agglomeration index A<1, the industry is in a recession of comparative advantage industry which will not be discussed in the study.

1.2.2 Similarity Coefficient

The industry system of Jilin Province formed in the period of national key projects had a heavy hue of planning economy and interregional market was segmented seriously. The ideas of "Large and Comprehensive City" as well as "Small but Comprehensive City" made the governments of Changchun and Jilin only consider their own interests in industrial development, which led to continuously striving for projects and investments. Finally the vicious competition resulted in a similar industrial structure of the two cities. In this study, we use the industrial structure similarity coefficient raised by International Industry Research Center of United Nations Industrial Development Organization (UNIDO) to analyze the industrial convergence of the two cities:

$$S_B^A = \sum_{i=1}^k X_{Ai} X_{Bi} \Big/ \sqrt{\sum_{i=1}^k X_{Ai}^2 \sum_{i=1}^k X_{Bi}^2} \quad (5)$$

In formula (5) S^A_B is the Similarity Coefficient in region A and region B respectively, 0≤S≤1, if S=0, it represents the industrial structure of the two regions are completely different; if S=1, it represents the industrial structure of the two regions are identical. Larger value of S indicates more similarity of industry structure in the two regions.

1.3 Intensity of Economic Ties

Changchun and Jilin are called "dual core" of economic development in Jilin Province. The two cities have close economic ties in industrial development and economic factors flow of personnel, resources, technology, information and so on. In this study, absolute amount of the economic links is used to examine the intensity of economic ties between Changchun and other cities in Jilin Province. The specific formula is shown below:

$$R_{ij} = \sqrt{P_i G_i} \sqrt{P_j G_j} \Big/ D_{ij}^2 \quad (6)$$

In formula (6) R_{ij} represents the absolute amount of economic ties between the two cities. P_i and P_j refer to the gross output of city i and city j respectively. G_i and

G_j refer to non-agricultural population of the two cities. D_{ij} is the distance between two cities. In this study, non-agricultural population, regional gross output, length of interurban railway line are used to calculate the intensity of economic ties between Changchun and other cities in Jilin Province including Jilin, Liaoyuan, Siping, Tonghua, Songyuan, Baishan and Yanji in Yanbian Korean Autonomous Prefecture.

2. RESULTS AND ANALYSIS

2.1 Prominent Heavy-Duty Industrial Structure

According to location quotient and agglomeration index of 37 industries in Changchun and Jilin, the competitive industries in growth period in the two areas can be listed as follows.

Table 1
Competitive Industries in Changchun Area

Competitive Industries	Location Quotient	Industry Agglomeration Index
Agro-food processing industry	1.464941	1.26861
Food Manufacturing	0.625748	1.734058
Pharmaceutical Manufacturing	0.518508	1.00108
Non-metallic mineral products industry	0.67103	0.692274
Fabricated Metal Products	0.884326	1.003403
General equipment manufacturing	0.858725	1.214621
Special equipment manufacturing	0.357924	1.0123742
Transportation Equipment Manufacturing	2.274574	1.03048105
Communications equipment, computers and other electronic equipment manufacturing	1.400587	1.137763

Table 2
Competitive Industries in Jilin Area

Competitive Industries	Location Quotient	Industry Agglomeration Index
Black metal mining industry	1.245989	0.906804
Non-ferrous metal industry	3.30166	1.053599
Nonmetal mining industry	2.597185	1.270252
Food Manufacturing	1.963242	1.511702
Chemical materials and chemical products manufacturing	3.976287	1.319659
Manufacture of Chemical Fibers	4.813099	1.030680
Non-ferrous metal smelting and rolling processing industry	3.131341	1.19505
Electrical machinery and equipment manufacturing	1.942932	1.472529
Communications equipment, computers and other electronic equipment manufacturing	1.027397	1.006809
Fabricated Metal Products	2.023699	1.258383

It can be seen from the tables above: In the regional gross output of the two cities, heavy-duty industry such as transportation equipment manufacturing, general equipment manufacturing, chemical materials and products manufacturing, chemical fiber manufacturing and so on has a higher proportion. Thus, the focus and basis of Changchun and Jilin's industrial development is heavy-duty industry, and with the development of transportation equipment manufacturing, chemical materials and products manufacturing, chemical fiber manufacturing, pharmaceutical manufacturing, etc. which are at the growing stage of comparative advantage industry, the characteristic of heavy-duty industry structure will become more prominent.

2.2 Convergence of the Industrial Structure and Divergence of the Strength

The calculated Similarity Coefficient of the two cities in 2005 and 2011 are 0.47093 and 0.631799 respectively, indicating a convergence of industrial structure. Nevertheless, the strength and nature of the same industry is not the same. Take the transportation equipment manufacturing for instance, in Changchun it belongs to the industries of comparative advantage whose output accounts for 96.59% of the industry's gross output in Jinlin Province, while the number of Jinlin is only 2.30% though there exists transportation equipment manufacturing in Economic Development Zone and Hi-tech Industrial Development Zone of Jilin. Changchun's car manufacturing accounts for 20.8% of the national market share whose sales revenue is only second to Shanghai. Changchun is the only city whose sales revenue ranks top 10 in the Northeast of China. Obviously, the transportation equipment manufacturing in Changchun is in an extremely strong stage.

2.3 Single Core Industries

The core industries of Changchun and Jilin are too single, such as the output of transportation equipment manufacturing accounts for 73.8% of the gross output in

Changchun area, the added value of chemical materials and chemical products manufacturing, non-metallic manufacturing and ferrous metal smelting and pressing industry accounts for 52.13% of the gross output in Jilin area. Such a single core industry will become an obstacle to optimize the industrial structure.

2.4 Tighter Economic Links Between Changchun and Jilin

Table 3
The Economic Links Between Changchun and Other Cities

Cities	value
Changchun-Jilin	43.3983
Changchun-Siping	20.70302
Changchun-Songyuan	11.50375
Changchun-Liaoyuan	3.488354
Changchun-Baicheng	1.446164
Changchun-Baishan	0.7935
Changchun-Tonghua	1.377607
Changchun-Yanji	1.062989

Obviously, the value of economic links between Changchun and Jilin is much bigger than the economic links between Changchun and other cities in Jilin Province. The frequent economic activities between the two cities of Changchun and Jilin are inseparable from the industrial association of the two cities. Recent years the more and more frequent flow of people and economic exchanges have a positive impact on economic links between the first and second largest cities in Jilin Province.

3. WAYS TO COORDINATED INDUSTRIAL DEVELOPMENT

According to the characteristics and problems of industrial development in Changchun and Jilin, coordinated industrial development of the two cities should follow the ways as follows.

3.1 Enhancing Corporate Mergers and Acquisitions

Enterprise groups via mergers, joint and restructuring to achieve scale expansion and enhance their overall competitiveness. Changchun and Jilin were the two key constructed and major cities in Jilin Province in the First Five-year Plan, where planned economy has been implemented for a long time. It made the state-owned economy take large proportion while private economy did not grow much, foreign capital was underutilized and economic development lacked vitality. So on one hand we need to make full use of the trading platform of property rights in corporate restructuring and bring in foreign capital as well as private capital. Meanwhile, key enterprises must continuously optimize their asset structure, adopt flexible strategies to achieve the growth of corporate earnings. On the other hand, we must rely on the economic behavior of enterprises to break the blockade between regions and market segmentation of Changchun and Jilin, promote the inter-regional free flow and optimized allocation of resources and production factors, and eliminate the inter-industry, inter-regional and inter-ownership barriers of enterprise association.

3.2 Cluster Development of Competitive Industries

The industries in the region of Changchun and Jilin have problems as repeated constructions, vicious competition, insufficient innovation and so on, through technical, institutional and organizational innovation to connect and extend existing competitive industrial chain of the two cities and to construct competitive industrial cluster. It is an effective way not only to enhance the competitive advantages of the two cities but also to polarize the economic growth. On the basis of existing industrial park of Changchun and Jilin, we need to build competitive industrial cluster in order to impel economic factors to flow between the two cities, bringing rational spatial combination of the factors as well as the improvement in quality, quantity, and efficiency of the combinations. Ultimately, we can achieve rational layout, structural adjustment, and organizational transformation in industry of the two cities.

3.3 Government Guide Integrated with Market-Driven

In the coordinated industrial development of Changchun and Jilin, on one hand we need the guide of government on the other hand we need to integrate the effects of government and market, and to continuously improve the system and structure complying with market supply and demand. Because of the profound ideological influence of the planned economy in Jilin Province, local government still has strong power to direct influence and intervene in local industry. Lacking of developed market economy and sound institution hindered the coordinated industrial development of the two cities. Hence, Changchun and Jilin should dilute the consciousness that government is the economic subject, regulate the functions of government, and continuously reform the economic system. Meanwhile, the two cities should also abolish and revise the repelling local policies and regulations in order to actively promote the coordinated industrial development of the two cities, and provide a favorable environment for coordinated industrial development by building factor markets for the two cities as well as making relevant policies and regulations to promote the free flow of product and economic factors.

3.4 Producer Services

Changchun and Jilin should vigorously develop the financial insurance, research and development, information services, advertising, exhibition, logistics, accounting, law, and various forms of producer services required in coordinated industrial development. Besides, the two cities should also improve the system of industrial management, appropriate strengthening the government's ability in guide of industrial planning and

overall coordination. Let the industrial authorities as well as industry associations to play their roles in promoting industrial development.

3.5 Land Policy

The reasonable supply of land is based on the need of coordinated industrial development and is according to the characteristics of various industrial agglomeration belts on the basis of rational utility of land in Changchun and Jilin. We should build a strict, scientific and effective mechanism of land management to ensure that land use is coherent with the direction of industrial development. We also need to ensure the sustainable development of land use, narrow the threshold for project entry, and build land-intensive mechanisms. In addition, the use of agriculture land especially the cultivated land should be strictly controlled. Repetitive construction should be prevented according to the relevant land policy. Here we especially need to decline the approval of land use for unauthorized projects of high energy consumption, high water consumption and environmental pollution. We also need to reverse the trend of development from caring about the outside and quantity to caring about the inside and quality.

3.6 Infrastructure Coordination

Well-developed transportation network can realize the free flow of capital, information, technology, labor and other factors of production. It also benefits the coordinated industrial development of the two cities. The government needs to further develop the road and rail network between cities and between city and town. Besides, it also needs to increase the investment of infrastructure in the counties outside Changchun and Jilin. By the device of stock issue, funds set-up, local bonds issue and other financial instruments to provide money for infrastructure construction. For example, build a Changchun or Jilin centric half-hour or one-hour economic circle, and build the traffic link "Changchun – Nongan – Dehui – Yushu – Jiaohe – Huadian – Panshi – Gongzhuling – Changchun" in order to strengthen the economic ties between other cities in Jilin Province, and give full play to the pole function of the two cities in economic growth.

3.7 Technological Innovation and Guarantee System of Talents

In order to achieve the coordinated industrial development and the optimization of industrial structure, the government should encourage innovation in technology as well as construction of talent market. The government also needs to do the following: rational utility of human resources, acceleration of talent market construction and the reform of system and mechanism, rational flow of talent and full play the function of industry of employment guidance. Guide and promote labor continuously to tertiary industries to solve structural contradictions of labor allocation. Improve the environment, increase the introduction of talent, make plans to absorb labor and introduce various levels of talent and build a reasonable structured, flexible, open, modern labor force training system.

REFERENCES

Hu, J. W., Zhang, Q. S., & Hu, L. (2012). Regional Industrial Integration and Economic Growth – Based on Cross-regional Mergers and Acquisitions. *China Soft Science*, *06*.

Lin, X. Y., Chen, Z. N. (2003). Economic Integration Model and Strategy Research of Pearl River Delta. *Forward Position in Economics*, *Z1*.

Lü, L. C. (2004). An Exploration to a Few Issues about the Integration of Industries. *Journal of Guangzhou University (Social Science Edition)*, *08*.

Nie, X. T. (2012). Industry Consolidation in Metropolitan Economic Development – in Pearl River Metropolitan Area. *Market Economy and Prices*, *01*.

Peng, C. H. (2009). The Difficulties and the Countermeasures of the Industrial Readjustment in the Pearl River Delta Region. *Lingnan Journal*, *03*.

Piao, Y. Z., Jin, Z. H. (2009). Industrial Integration of Economic Integration in Yan-Long-Tu Pilot Zone. *Economic Review*, *03*.

Wang, S. J. (2007). Economic Integration in Metropolis Circle: "Prisoner's Dilemma" Perspective. *Finance and Economics*, *9*.

Wang, R. C., Zhang, Y. Y. (2008). Industry Consolidation in Central Core Areas of Jinlin Province. *Journal of Jilin Business and Technology College*.

Xue, J. J. (2004). The Conformity & Cooperation of the Industries in Metropolis Circle Region. *Modern Economic Research*, *04*.