

Issues of Economic Growth and Unemployment in Inner Mongolia

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Introduction

The economy of the twelve provinces of China's West Regions has experienced rapid growth since the launch of the government's West Region¹⁾ Development Program. Growth in per capita GDP of the Inner Mongolia Autonomous Region is particularly remarkable. In 2000, per capita GDP in the region was 5,872 Yuan, placing it 16th in the country and far below the then national average of 8,592 Yuan. By 2005, per capita GDP in the region reached 16,331 Yuan, raising it to 10th place and bringing it above the then national average of 16,203 Yuan. The GDP growth rate of Inner Mongolia ranked first place for three years straight, reached 23.8% in 2005, exceeding the national standard by 13.6 points. It is generally understood that the rapid economic growth of this region can be attributed to expansion in government expenditure, fixed capital formation, and private final consumption expenditure. In fact, Inner Mongolia showed an increase in fixed asset investment of 48.6% (number 1 in the country) and an increase in total retail sales of consumption goods of 15.8% (number 2 in the country) in 2005. It should be noted, however, that none of the other 11 provinces of the West Regions have achieved the remarkable economic growth seen in Inner Mongolia, though massive investment has been made in all the twelve provinces under the West Region Development Program. It can be speculated that Inner Mongolia has established a rational system of production and distribution which efficiently links investment and consumption to production and reproduction.

It is generally believed that economic growth can contribute to the creation of employment opportunities and to a corresponding decrease in the unemployment rate. This belief, however, cannot be applied to Inner Mongolia, where the unemployment rate increased from less than 3.5% in the 1990s to 3.7% in 2001, and to over 4.0% in 2002, when the local economy began showing markedly high growth as a result of progress in the West

1) West Regions in China are Sichuan, Guangxi, Inner Mongolia, Shanxi, Yunnan, Chongqing, Xinjiang, Guizhou, Gansu, Ningxia, Qinghai, Tibet. (See Lian and Wu 2006)

Region Development Program. Keeping such phenomena in mind and specifying industrial characteristics of the region, this study aims to clarify the major factors contributing to the rapid economic growth of Inner Mongolia and examine possible solutions to the serious issue of the region's increasing unemployment rate.

1. Review of Earlier Studies

It is generally agreed that the focus of Chinese economic policy after economic reform has shifted from heavy industry centered on investment goods to light industry centered on consumer goods and that this policy change has contributed to a remarkable increase in the supply of consumer goods and to a growth in the creation of employment. Through an extensive analysis of change in industry-specific production share value in China during the 1980s and 90s, however, Moriwaki and Shimizu (2005) identified a decrease in the share of light industry and an increase in the share of heavy industry. They concluded that the Chinese industrial structure experienced a significant shift from agriculture to industry and from light to heavy industry as the country underwent industrialization. Examining the existing indexes of heavy industry and analyzing correlations between the increase in industrial productivity and the rate of advance of heavy industrialization, Fang (2005) reported that the indexes of heavy industry including consumer durable goods manufacturing indicated that heavy industry, though affected by non-economic factors, was beginning to develop on the basis of production value growth. In short, Fang pointed out that growth in labor productivity resulted in progression in the heavy industrialization of Chinese industry. These study results suggest a potential decrease in the creation of employment in Chinese industry, which is experiencing a shift toward a capital-intensive production system. Utilizing the inter-industrial relation model, Hu (2005) analyzed pattern change in the Chinese labor input structure and a decline in the rate of increase of labor input. The results of analysis showed a decline in the rate of increase of labor input and that a constant increase in tertiary industry share in terms of consumption/intermediary input was difficult to maintain due to the relatively high rate of labor absorption in primary industry and the high rate of labor productivity in secondary industry. This indicates that the absence of advancement in the industrial structure of consumption and intermediary input would cause a limit to any increase in labor input in all industry.

While such studies contribute to a clarification of the current status of Inner Mongolia to a certain extent, the focus of analysis is on the country as a whole or individual provinces rather than specific areas. Most research on Inner Mongolia has focused on ethnic

culture, policies, agricultural/livestock industrial management, environmental issues, and inter-regional economic disparity, while few studies have focused on analyzing economic growth and employment issues from the viewpoint of inter-industrial relationships.²⁾

In regard to study methods, economic base analysis is traditionally employed in Japan to examine regional/industrial development. For example, Kameyama (2000) estimated basic industries by applying the specialization coefficient method to the number of employed workers in Fukuoka City, Kitakyushu City, Oita City, and Muroran City in order to analyze the growth/decline of the cities based on the relation in each city between the number of basic industry workers and population size. Estimation results suggest that cities with a high correlation between number of employed workers in basic industries and population size decline and that cities with a high correlation between number of employed workers in non-basic industries and population size develop. In Japan, both policy researchers and local government (e.g. Takayama City 2006) used a basic model for economic base analysis in order to study economics and urban geography as well as to analyze various issues such as local revitalization and job creation.

Following the example of such research, this study employed the regional economic base analysis (BN analysis) method. This simple analysis model will facilitate clarification of the factors that have caused rapid economic growth and an accompanying rise in unemployment by specifying the basic industries that support the development of regional economy and employment from the perspectives of productivity and labor, and by a careful analysis of the relationships seen between these factors as well as those seen among the industries.

2. Analysis of Regional Economic Base (BN analysis)

In order to clarify the industrial characteristics of a regional economy or its prospects for economic development, it is important to analyze the economic activity which supports that region's economic base (Nakamura and Tabuchi 2006). Regional economic activity consists of basic and non-basic activity. Basic activity includes not only support for the development of the basic regional economy but also transport regional products, after exclusion of what is required for the region, to other regions in order to gain income. Non-

2) The industrial structure in this paper is based on "Statistical Yearbook of Inner Mongolia 2006". There are some differences between China standard and Japan standard on the classification method, but which is similar to "divisions" based on "General Rules of the Japan Standard Industrial Classification" (Ministry of Internal Affairs and Communications).

basic activity includes activity aimed at the domestic needs of the region or the transportation of required goods, which cannot be produced in sufficient quantity within the region, from outside of the region. The basic and non-basic activities are related to each other. The non-basic activity contributes to the smooth conduct of the basic activity. Economic base analysis was conducted in the following method (Otomo 2006, Hama and Yamaguchi 1997).

The number of individuals engaged in basic activity or the volume of production of the basic activity is indicated by E_B , and number of individuals engaged in non-basic activity or the volume of production of non-basic activity is indicated by E_{NB} . Total number of regional workers or total volume of regional production can be expressed as :

$$E = E_B + E_{NB} \quad \dots\dots (1)$$

When rate of the non-basic activity to the basic activity is indicated by a ,

$$a = E_{NB} / E_B \quad \dots\dots (2)$$

with each single individual employed for the basic activity, employment for the non-basic activity increases by a . E_{NB} / E_B is known as *BN ratio*. Total number of regional workers or total volume of regional production can also be expressed as :

$$E = (1 + a) E_B \quad \dots\dots (3)$$

An increase in employment for the basic activity by 1 leads to an increase in employment of the region by $1 + a$. Also, an increase in production of the basic activity by 1 unit leads to an increase in production for the entire region by $1 + a$ unit. In other words, regional economic activity is determined by the basic activity. $1 + a$, which is known as the “regional multiplier,” is of essential importance in recognizing regional economic characteristics and forecasting regional economic development.

The methods employed in the estimation of basic activity in BN analysis is the specialization coefficient method in this study. It is a method used to estimate basic activity based on the industrial structure ratios of region and nation. It is conducted as follows :

$$LQ_{ij} = Q_{ij} / Q_{ij} \quad \dots\dots (4)$$

LQ_{ij} indicates the specialization coefficient of j industry in i region ; Q_{ij} indicates the structure ratio of j industry in i region ; and Q_{ij} indicates the structure ratio of j industry in the country being examined. Assume that the production of the relevant industry is equivalent to consumption in the region when the specialization coefficient is 1. When the specialization coefficient is higher than 1, production of the relevant industry surpasses the domestic need of the region and the excess production is thought to be transported to outside the region. When the volume of excess production is negative, it indicates that the relevant industry is not a basic activity. By multiplying the ratio of excess to specialization

coefficient by the number of actual employees or the volume of actual production, the scale of the basic activity (e.g. number of individuals engaged in the basic activity and volume of production of the basic activity) is obtained.

In general, number of employees is often used in BN analysis due to statistical constraints. It is, however, thought to be more appropriate to use volume of production in estimating the pure economic base. In order to analyze the economic base of Inner Mongolia from the perspectives of economic development and job creation, BN analysis was conducted in this study using both volume of production and number of employees. For the accurate estimation of the economic base, added values of respective industries, that is, differences between volumes of production and interim products were used. In addition, considering that products could be transported to the outside of the region on a nationwide level, so country-based analyses were conducted in order to specify the major basic industries by modified Weaver's method.³⁾ A comparison of the results of the two-type analyses was also carried out.

3. Geographic and Economic Characteristics of Inner Mongolia

Characteristics of industrial structure of Inner Mongolia showed in Table 1 were formed by following factors. Located in the northern area of China, Inner Mongolia stretches 2,400 kilometers from east to west and 1,700 kilometers from north to south, covering a total area of 1.2 million square kilometers. Such a vast area would face obstacles to achieving economic growth without development of the transportation and communication industries. Forests account for 17.6% (20.8 million hectares), slightly below the average national forest-to-total area ratio of 18.2%. The ratio of cultivated land to total area is 6.2% (7.4 million hectares), below the national average of 13.5%. Cultivated land per capita is 0.31 hectare, 3 times the national average of 0.10 hectare. Grassland area is 86.7 million hectares, accounting for 73.3% of the local area (usable grassland is 68.2 million hectares ; 57.6%), far above the national average of 41.7% (usable grassland is 313.3 million hectares ; 32.6%). Meanwhile, the total amount of water resources in the

3) The modified Weaver's method (or Weaver's method) is a method which can be used for estimating the major basic industries of a region. In this method, regional basic industries are determined based on industrial combination ; that is, industries which have minimum variances between theoretical and actual industrial construction rates are considered basic industries. When the actual value of the industrial construction rate is expressed as x and theoretical value as X , variance, V , is obtained by the following formula : $V = \sum (x - X)^2 / N$ (Weaver's method) N indicates the number of industries. Since this method can be affected greatly by the number of industries, Kikuichi Doi has devised a modified version of Weaver's method. (See Otomo 1997, Chapter 4)

Table 1 : Industrial Structure in Inner Mongolia (2005)

Industry		Sector					
A d d e d V a l u e	Primary						
		Agriculture	Livestock	Miscellaneous primary industry			
	589.6	316.5	231.2	41.9			
	15.1%	53.7%	39.2%	7.1%			
	Secondary						
		Mining and Manufacturing	Construction				
	1,773.2	1,477.9	295.3				
	45.5%	83.3%	16.7%				
	Tertiary						
		Transportation and communication	Finance and insurance	Real Estate	Service	Miscellaneous tertiary industry	
1,532.8	421.5	67.5	98.3	35.4	910.0		
39.3%	27.5%	4.4%	6.4%	2.3%	59.4%		
L a b o r	Primary						
		Agriculture	Livestock	Miscellaneous primary industry			
	562.0	458.4	3.6	81.4			
	54.3%	81.6%	0.6%	14.5%			
	Secondary						
		Mining and Manufacturing	Construction				
	176.8	126.9	49.9				
	17.1%	71.8%	28.2%				
	Tertiary						
		Transportation and communication	Finance and insurance	Real Estate	Service	Miscellaneous tertiary industry	
	296.7	38.2	7.1	3.3	5.5	242.7	
	28.7%	12.9%	2.4%	1.1%	1.9%	81.8%	

Data source : Inner Mongolian Economic Survey 2006 by National Bureau of Statistics of China, Inner Mongolia Survey Team (ed.) 2006 ; Chinese Statistics Press. Statistical Yearbook of Inner Mongolia 2006 by Bureau of Statistics of Inner Mongolia (ed.), 2006, Chinese Statistics Press.

region is as low as 54.6 billion cubic kilometers, accounting for only 1.9% of the national average. The vast amount of cultivated land and grassland area in the region have contributed to the agriculture and livestock industries, while insufficient water supplies are the cause of low land productivity. Inner Mongolia is abundant in mineral reserves. In fact, 120 of the 140 varieties of minerals that are known to the world were discovered in Inner Mongolia. The major mineral reserves in the region are coal and metals, and rare earth mineral reserves in the region make up 80% of the global share. Such natural resources have promoted the mining industry and secondary industries related to mining. Next to eight Chinese provinces and sharing its 4,200 kilometer border with Mongolia and the Russian Federation, seems to have afforded Inner Mongolia a great advantage in developing commerce and international trade.

Residents of Inner Mongolia, a multiethnic region, represent 49 of the 56 ethnic groups found in China. Of the total regional population of 23.9 million, Han people account for 18.7 million (78.4%), Mongolians 4.2 million (17.6%), and the other minority ethnic groups account for 0.9 million (4.0%). Considering the possibility of active inter-ethnic cultural exchange, the ethnic background of the region seems beneficial to the development of commerce, and the catering and service industries. 57.7% (13.8 million) of the total population is rural. The number of people involved in agriculture is 11.9 million, and the number of people involved in the livestock industry is 1.9 million, which accounts for 86.1% and 13.9%, respectively, of the rural population. This suggests that the overwhelming majority of people in Inner Mongolia are engaged in agriculture rather than livestock production. It is undesirable that such a large portion of the working population be engaged in agriculture in a region with low land productivity because this is a potential cause of income disparity among industries.

In 2005, Inner Mongolia achieved significant economic growth, ranking first for growth rate in 3 respective industries (primary industry : 9.1% ; secondary industry : 34.9%, tertiary industry : 18.1%). The primary industrial value-added per capita of the region was 2,514.7 Yuan, the third highest following Hainan and Xinjiang. Fully 40% of the primary industrial value-added per capita of the Inner Mongolia is from the livestock industry, the most highly developed in China. Secondary industrial value-added per capita of the region is ranked 12th in the country and 1st in the Midwestern regions. Tertiary industrial value-added per capita of the Inner Mongolia is ranked 9th in the country, making it not only highest in the Midwestern regions but also higher than Shandong and Hebei in the East regions.

It is the government's West Region Development Program, launched in 2000, that has contributed to the rapid economic growth of Inner Mongolia. However, none of the other eleven provinces of the West regions, in which the program has been equally applied, have shown economic growth comparable to that of Inner Mongolia. Beyond Inner Mongolia, only the Guangxi Autonomous Region's growth rate (13.2%) surpassed the corresponding national average (12.7%) in 2005. The growth rate of Yunnan Province, one of the twelve provinces of the West regions, was 9.0% in 2005, placing it lowest in the country. It can be assumed, therefore, that factors other than government economic policy are associated with the economic growth of Inner Mongolia. As stated earlier, though an increase in investment and consumption can promote growth in GDP, investment that is inappropriate to an industrial structure can cause external diseconomy and a failure to stimulate sustainable economic growth. Massive fixed asset investment in Inner Mongolia, therefore, can

be viewed as appropriate to the industrial structure of the region. An industrial structure that is rationalized to local characteristics can be a major factor for local economic growth. From this viewpoint, it is worth examining the industrial characteristics of Inner Mongolia, which have supported the sustainable economic growth of the region.

In high-population China, where the market economy is progressing, continual economic development and the creation of employment are two of the most significant concerns in terms of expectations for industry. While increases in investment and consumption contribute to growth in the GDP, economic development that lacks rationality can cause external diseconomy and work against continuous economic growth. It has been pointed out that over-cultivation, overgrazing, and an excessive level of industrialization are causing the salination and desertification of the farm and the grasslands in Inner Mongolia, directly affecting the primary industry that depends on the environment. Ongoing desertification is not only harmful to primary industry, an important industry in Inner Mongolia, but is also harmful to other industries in indirect ways.

With the growth in the local economy, the unemployment rate in Inner Mongolia has increased rapidly. The unemployment rate of the region in 2005 was 4.3%, placing it 7th in the country. During the 3-year period in which Inner Mongolia's GDP was at the top, it also became one of the top regions in terms of unemployment rate (e.g. 4.5%, 3rd highest in China in 2003 ; 4.6%, 2nd highest in 2004), showing a sharp rise in the rate compared with 2000 (3.3%), when the West Region Development Program started. In general, growth in the basic industries promotes other industries and, therefore, increases work opportunities. Under such circumstances, the unemployment rate would hardly be expected to increase. It is essential to clarify the factors contributing to the rising unemployment rate in Inner Mongolia and examine the possibility of job creation.

4. Basic industries in Inner Mongolia

Compared to the national economy, regional economies are smaller in scale with fewer types of basic industries. Due to the difficulty of protecting regional industries through tariff and the exchange rate, regional economies tend to be affected by competitive external markets. Considering these factors, the basic industries in Inner Mongolia were estimated in this study on the basis of the structural proportions of labor and added value.

As shown in the results of the labor structural ratio-based estimation of the basic industries in the respective prefecture-level cities or leagues⁴⁾ (Table 2), agriculture and live-

4) Administrative divisions in China consist of provinces, prefectures, counties, and towns/villages. /

Table2 : BN Analysis Estimation of Major Basic Industries of the Prefectures in Inner Mongolia

Prefectures	Estimation based on labor structural ratios	Estimation based on added value structural ratios	Common industries
Hohhot	Agriculture , livestock, finance and insurance, service, real estate	Miscellaneous tertiary industry, transportation and communication , construction, finance and insurance	finance and insurance
Baotou	Manufacturing , agriculture, livestock, finance and insurance, real estate	Transportation and communication, manufacturing , miscellaneous tertiary industry, construction	Manufacturing
Hulunbeier	Agriculture , livestock, finance and insurance, service, real estate, transportation and communication	Agriculture, transportation and communication, livestock , construction, miscellaneous primary industry, miscellaneous tertiary industry	Agriculture , livestock, transportation and communication
Tongliao	Agriculture , livestock	Agriculture, livestock , transportation and communication, miscellaneous tertiary industry, construction	Agriculture , livestock
Chifeng	Agriculture , miscellaneous tertiary industry, livestock	Agriculture, livestock , transportation and communication, construction	Agriculture , livestock
Wulanchabu	Agriculture , livestock, finance and insurance	Livestock, construction , transportation and communication, agriculture	Agriculture, livestock
Erdos	Agriculture, livestock , transportation and communication, manufacturing, finance and insurance	Transportation and communication, manufacturing , construction	Manufacturing, transportation and communication
Bayannaoer	Agriculture , livestock, finance and insurance	Agriculture, construction, livestock , transportation and communication	Agriculture , livestock
Wuhai	Manufacturing , construction, finance and insurance, real estate, service	Manufacturing , construction, transportation and communication	Manufacturing , construction
Xingan	Agriculture , livestock	Livestock, agriculture , transportation and communication, miscellaneous primary industry, construction	Agriculture , livestock
Xilinguole	Agriculture, livestock	Livestock, construction , transportation and communication	Agriculture , livestock
Alashan	Livestock , agriculture	Manufacturing, construction , transportation and communication	—

Notes : BN analysis was conducted based on the total number of employees in the respective industries in the urban and rural areas of the prefecture-level cities and leagues in Inner Mongolia as published in *Inner Mongolian Economic Survey 2006* (Chinese Statistics Press) and *Statistical Yearbook of Inner Mongolia 2006* (Chinese Statistics Press). Regarding detailed classification data of tertiary industry in Xingan, Xilinguole, and Alashan, estimated values were used due to the unavailability of the original data. The major basic industries identified by modified Weaver's method are listed in boldface.

stock were extracted as basic industries for all of the prefecture-level cities and leagues except Wuhai. In general, Inner Mongolia focuses on the agriculture and livestock industry

↘ Prefectures include prefecture-level cities, autonomous prefectures, and leagues in Inner Mongolia.

in the east and on manufacturing industry in the mid-west. Looking at the region as a whole, however, it is clear that the agriculture and livestock industry is the major basic industry in terms of labor absorption throughout the region. The other basic industries of the region are as follows :

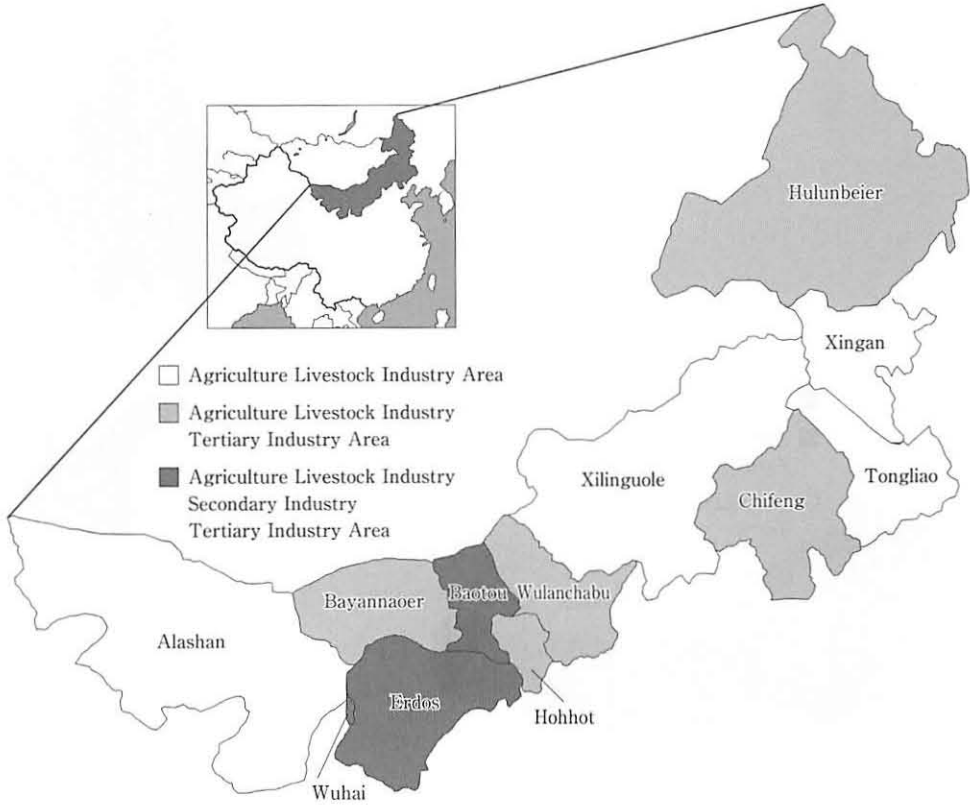
Tertiary industry such as finance and insurance, service, and real estate businesses were extracted as the basic industries in Hohhot, the seat of government in Inner Mongolian Government. Finance and insurance, service, and real estate were extracted along with manufacturing as the basic industries in Baotou, a nationally famous industrial city. Finance and insurance, transportation and communication, service, and real estate were extracted as the basic industries in Hulunbeier, miscellaneous tertiary⁵⁾ industry in Chifeng, finance and insurance in Wulanchabu, manufacturing, finance and insurance, transportation and communication in Erdos, finance and insurance in Bayannaoer, manufacturing, construction, finance and insurance, real estate, and service in Wuhai. Other than the agriculture and livestock industry, no other basic industries were extracted for Tongliao, Xingan, Xilinguole, and Alashan. Based on labor structural ratios, this study classified Inner Mongolia into 3 regional types as shown in Figure 1: 1) Agriculture and livestock regions (Tongliao, Xingan, and Xilinguole); 2) Agriculture and livestock/tertiary industry regions (Hohhot, Hulunbeier, Chifeng, Wulanchabu, and Bayannaoer); and 3) Agriculture and livestock/manufacturing/tertiary industry regions (Baotou, Wuhai, and Erdos).

Table 2 shows the results of the estimation of added value structural ratio-based basic industries. In this estimation, transportation and communication as well as construction were extracted as the basic industries of all the prefecture-level cities and leagues in Inner Mongolia. This is attributed to the rapid improvement of infrastructure in line with the Great Western Development. In addition to transportation and communication and construction, the following industries were extracted as the basic industries in the respective prefecture-level cities and leagues: miscellaneous tertiary industry and finance and insurance in Hohhot; manufacturing and miscellaneous tertiary industry in Baotou; agriculture and livestock, and miscellaneous primary industry⁶⁾ in Hulunbeier; agriculture and livestock, and miscellaneous tertiary industry in Tongliao; agriculture and livestock in Chifeng, livestock in Wulanchabu; manufacturing in Erdos; agriculture and livestock in Bayannaoer; manufacturing in Wuhai; agriculture and livestock, and miscellaneous pri-

5) Miscellaneous tertiary industry includes all the types of tertiary industry that are not mentioned in this paper (e.g. food, research and education, health and welfare, social organization, government sector).

6) Miscellaneous primary industry includes the forestry, fishery, and agricultural service, which is classified as primary industry in China.

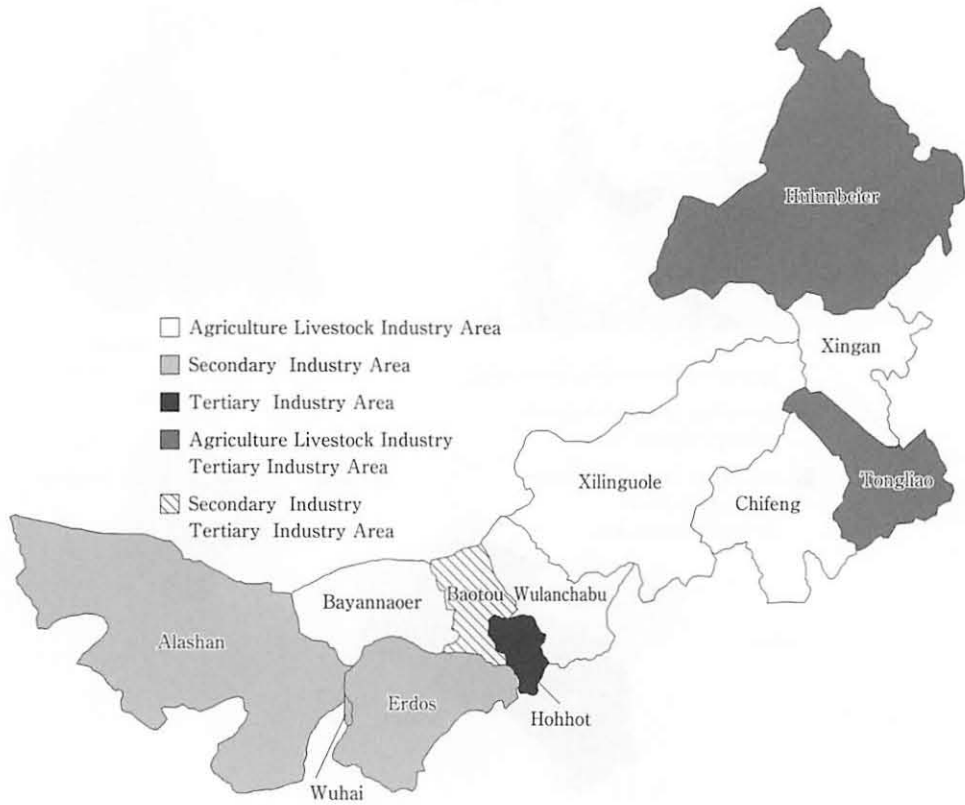
Figure 1 : Labor Structural Ratio-based Basic Industries in the Respective Prefecture-level Cities and Leagues



mary industry in Xingan ; agriculture and livestock in Xilinguole ; and manufacturing in Alashan. As shown in Figure 2, based on the added value structural ratio, Inner Mongolia can be classified into the following 5 types of regions : 1) Agriculture and livestock Regions (Chifeng, Wulanchabu, Bayannaoer, Xingan, and Xilinguole) ; 2) Manufacturing Regions (Erdos, Wuhai, and Alashan) ; 3) Tertiary Regions (Hohhot) ; 4) Agriculture and livestock/tertiary industry Regions (Hulunbeier and Tongliao) ; and 5) Manufacturing/tertiary industry Regions (Baotou).

The labor structural ratio-based estimation and the added value structural ratio-based estimation showed certain basic industries in common ; namely, finance and insurance in Hohhot, manufacturing in Baotou, agriculture and livestock, and transportation and communication in Hulunbeier, agriculture and livestock in Tongliao, agriculture and livestock in Chifeng, agriculture and livestock in Wulanchabu, transportation and communication and manufacturing in Erdos, agriculture and livestock in Bayannaoer, manufacturing and construction in Wuhai, agriculture and livestock in Xingan and Xilinguole. No common basic industry was identified in Alashan. As shown in Figure 3, based on the common

Figure 2 : Added Value Structural Ratio-based Basic Industries in the Respective Prefecture-level Cities and Leagues



basic industries, with the exception of transportation and communication and construction, Inner Mongolia can also be classified into the following types of regions : 1) Agriculture and livestock regions (Hulunbeier, Tongliao, Chifeng, Wulanchabu, Bayannaoer, Xingan, and Xilinguole) ; 2) Manufacturing regions (Baotou, Erdos, and Wuhai) ; 3) Tertiary industry regions (Hohhot) ; and 4) Industrial regions with no common industries (Alashan). This Figure shows the structural outline of Hohhot, the seat of government in Inner Mongolian, as allowing its tertiary industry area to function as a central urban area surrounded by an area of secondary industry, with the agriculture and livestock industry spreading further out. Agriculture and livestock are distributed mainly in the eastern part of the city, while secondary and tertiary industries are distributed in the mid-western part.

Considering the major basic industries extracted on the basis of the labor structural ratio and added value structural ratio (See Table 2), there are differences in employment and productivity capacity among the major basic industries in the regions that are thickly-populated and industrially developed (Hohhot, Baotou, Wulanchabu, Erdos, and Alashan). In the context of rapid economic growth, the traditional industrial structure in

Figure 3 : Common Industry-based Basic Industries in the Respective
Prefecture-level Cities and Leagues

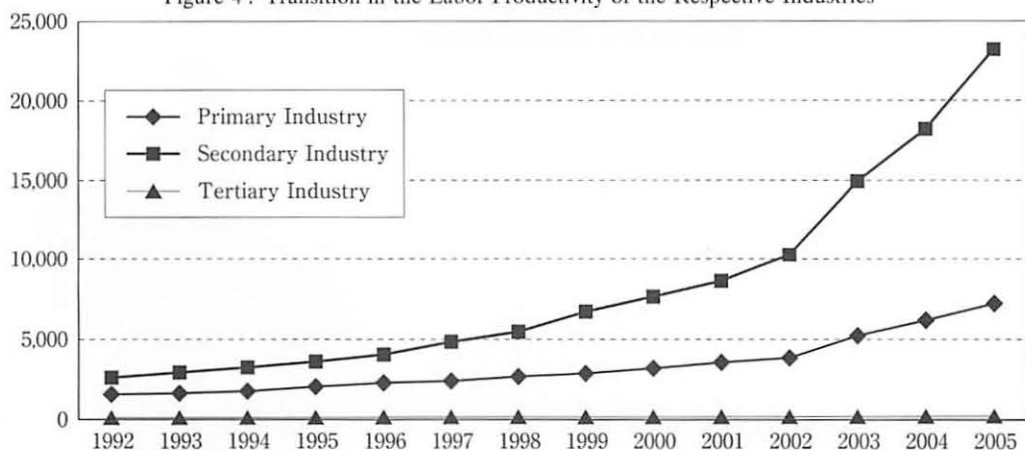


these regions has remained the same ; that is, secondary and tertiary industries, which contribute greatly to the structure of added value, exhibit, either wholly or in part, low labor absorption while primary industry, which contributes little to the structure of added values, absorbs the labor force.

An examination of the details of industry reveals that iron and steel, electricity supply, and mining are central in Baotou, electricity supply and mining in Erdos, iron and steel/metal-processing and the chemical industries in Wuhai, and mining and electricity supply in Alashan (National Bureau of Statistics of China, Inner Mongolia Survey Team 2006, Bureau of Statistics of Inner Mongolia 2006). This implies that the economic growth of Inner Mongolia is based on capital intensive heavy industry and that employment continues to be based on primary industry with low productivity. This is confirmed by the time-series transition in labor productivity of the respective industries in Inner Mongolia.

As seen in Figure 4, labor productivity in primary industry shows a slightly upward tendency while labor productivity in the secondary and tertiary industries exhibits a rapid rise. The velocity of the rise exhibited by the secondary and tertiary industries, particular-

Figure 4 : Transition in the Labor Productivity of the Respective Industries



ly the secondary industry increased at an even greater rate after implementation of the Great Western Development. This indicates that rapidly developing secondary and tertiary industries have produced only minor growth in employment.

Estimation method-based BN ratios and regional multipliers (Table 3) show that estimated regional multipliers based on added value structural ratios exceed those based on labor structural ratios in all the prefecture-level cities and leagues except for Hohhot, where tertiary industry is developed. In particular, the regional multipliers based on the labor structural ratios of industry-centric Wuhai and the regions whose major basic industries are agriculture and livestock show the lowest standards. The concentration of labor force in the few basic industries leads to low regional multipliers, indicating that a limited variety of basic industries works against the creation of employment. This is consistent with Kameyama's conclusion (2000): "Cities with a high correlation between the size of population and the number of employees in the basic industries decline while cities with a high correlation between size of population and the number of employees in the non-basic industries develop."

A comparison of Tables 2 and 3 confirms that Hohhot, Baotou, and Chifeng, where tertiary industry is well-developed, have high regional multipliers based on their labor structural ratios. Having multiple types of tertiary industry as basic industries in addition to agriculture and livestock, Hulunbeier, though located in the remotest area, shows a higher regional multiplier than its neighboring cities. These facts indicate the importance of tertiary industry in terms of the creation of employment.

Table 3 : Estimation Method-based BN Ratios and Regional Multipliers

Prefectures	Estimation based on added value structural ratios		Estimation based on labor structural ratios	
	BN ratios	Regional multipliers	BN ratios	Regional multipliers
Hohhot	4.12	5.12	5.17	6.17
Baotou	6.31	7.31	3.18	4.18
Hulunbeier	4.03	5.03	1.82	2.82
Tongliao	3.95	4.95	1.75	2.75
Chifeng	5.37	6.37	3.18	4.18
Wulanchabu	3.16	4.16	2.04	3.04
Erdos	5.58	6.58	2.68	3.68
Bayannaoer	3.30	4.30	1.50	2.50
Wuhai	4.03	5.03	1.43	2.43
Xingan	3.33	4.33	0.77	1.77
Xilinguole	5.68	6.68	0.80	1.80
Alashan	6.65	7.65	0.60	1.60

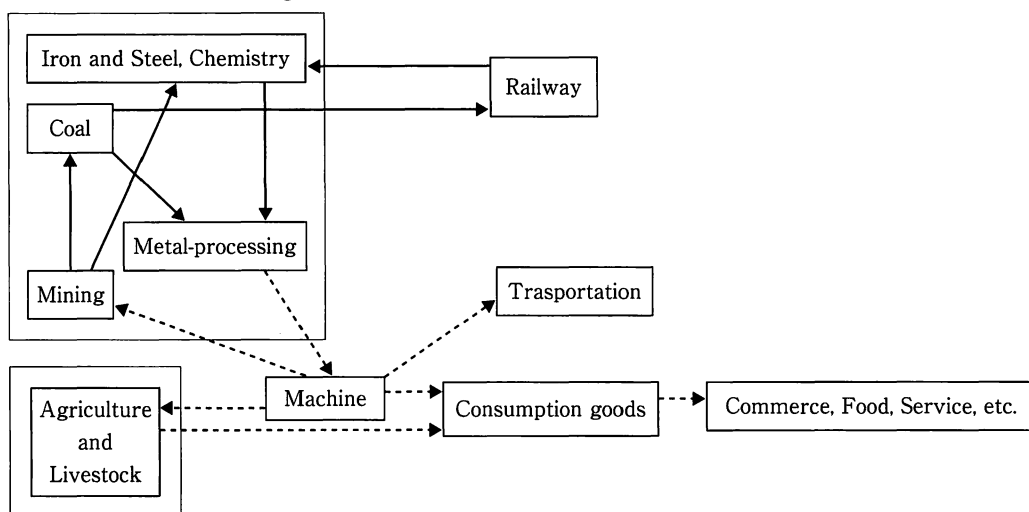
Note : BN analysis was conducted based on the total number the employees in the respective industries in the urban and rural areas of the prefecture-level cities and leagues in Inner Mongolia as published in Inner Mongolian Economic Survey 2006 (Chinese Statistics Press) and Statistical Yearbook of Inner Mongolia 2006 (Chinese Statistics Press). Regarding detailed classification data of tertiary industry of Xingan, Xilinguole, and Alashan, estimated values were used due to the unavailability of the original data.

5. Characteristics of Basic Industries and Local Economy

No industries are completely independent. Rather, the development of certain industries promotes the development of certain other industries.³⁾ Regarding this inter-industrial relationship, the iron and steel/metal-processing, chemical, and spinning industries are high in both forward and backward linkage. Mining, agriculture livestock, industry and electric power industries are high in forward linkage but low in backward linkage. The food-processing industry is low in forward linkage but high in backward linkage. The transportation, communication and commerce industries are low in both forward and backward linkage.⁴⁾ From the viewpoint of inter-industrial relationships, it can be said that the industrial structure of Inner Mongolia has an advantage in promoting economic growth but not in generating employment.

Figure 5 is based on the inter-industrial relation table developed by Ray.⁵⁾ It shows that the Inner Mongolian basic industries other than agriculture and livestock, that is, the mining, coal, iron and steel/metal-processing and chemical industries, are closely related to one another through either forward or backward linkage. An increase in investment in one of these basic industries contributes to the development of industries that are related through forward or backward linkage ; and development of such related industries promotes the original industry, generating a highly synergistic effect. For example, massive capital investment in the iron and steel/chemical industry serves to promote an increase in

Figure 5 : Inter-industrial Relation in Inner Mongolia



Note : This figure was created by the writer based on "Ray [9] 1998, Figure 5.3 Linkages and Coordination." The industries inside the thicker frames indicate basic industries in Inner Mongolia. Solid arrows indicate general inter-industrial relations. Dotted arrows indicate the inter-industrial relations which are supposed to be insufficient in Inner Mongolia.

iron and steel/chemical industry products. This, in turn, leads to an increase in demand for the raw material, promoting production in the coal/mining industry, which is linked backward. With the increase raw material, the metal-processing industry, which is linked forward, also develops. Development of the coal, mining, and metal-pressing industries promotes development of the iron and steel/chemical industry. Considering that manufacturing plants are concentrated in the mid-western region, Inner Mongolia also has an advantage in terms of lower transportation costs. Such industrial characteristics seem to have allowed Inner Mongolia to achieve its rapid economic growth.

The increase in the region's unemployment rate can be attributed to the following 3 factors.

The first factor is elimination of the work force. In Inner Mongolia, the rural population accounts for 57.7% of the total population. In the eastern region in particular, agriculture and livestock are significant industries that support the local economy. Due to a serious lack of water, desertification/salification is rapidly advancing throughout the vast grasslands and cultivated areas of the region. In 1999/2000, the degeneration of grasslands reached 45.9 million hectares, that is, 58.3% of the total land area of the region,⁶⁾ significantly affecting the livestock industry. The area of desertified land totaled 70.2 million hectares, 59.3% of the total land of the region and accounting for 21.1% of the total desertified land in the country,⁷⁾ 332.2 million hectares. At an altitude of over 1,000 meters

7) According to the *Statistical Yearbook of Inner Mongolia 2006*, p. 120, agricultural population ✓

above sea level, the majority of Inner Mongolia's land has a rock or sand base with a thin covering of soil. This geologic fact can cause serious problems in the region. The variety of crops is limited due to a shortage of water, while occasional heavy rain can cause subsidence, cracking or landslides in cultivated areas, which naturally affects agricultural production. Low land productivity and the development of non-agricultural industries have contributed to an increase in income disparity among industries. This situation is reflected in the fact that the industrial structural rate for primary industry, which is less than 20%, is supported by a labor structural rate of higher than 50%. In such a situation, the government of the region actively encourages farmers to abandon farming or to engage in farming as a subsidiary business with the aim of rationalizing the industrial structure. While the population of Inner Mongolia has increased steadily, its agricultural population began to decline in 2000, when the Western Region Development Program was initiated.⁷⁾ The labor force that was eliminated from the rural areas moved into non-agricultural areas, heightening demographic pressure in the region.

The second factor is a weak capacity to absorb the labor force of the basic industries. Normally, labor force eliminated from the agricultural areas is expected to be absorbed by other industries. In non-agricultural areas, however, there are no industries which can absorb such redundant workers effectively. In general, it is of extreme importance for a regional economy to have industrial diversity, which serves not only to increase the supply of goods and services but also to curb rises in the unemployment rate. The variety of basic industries is limited in all of the prefectures of Inner Mongolia, indicating the region's poor inter-industrial relationships. In other words, these prefectures are specialized areas consisting of a limited variety of industries, which cannot produce a sufficient volume of employment opportunity.

The manufacturing industry, a basic industry in Inner Mongolia, consists of capital-intensive heavy industries, such as mining, electric power, iron and steel/metal-processing, and chemical industries. Massive fixed asset investment has contributed to the development of heavy industries and to a heightening of productivity, but not to the creation of employment opportunity. In fact, in Inner Mongolia, the industrial structural rate of secondary industry has risen since 2000, while the labor structural rate has decreased. This has shown that an expansion of investment in secondary industry served to promote productivity in capital-intensive industries and to increase the disparity of labor productivity

⁷⁾ increased from 13.1 million in 1975 to 15.5 million in 1999, and decreased to 14.4 million in 2005. Rural population decreased from 13.7 million in 2000 to 12.6 million in 2005. It can be said that the eliminated agricultural population corresponded roughly to the eliminated rural population.

between secondary and the other industries.

The third factor is a weak capacity for labor absorption in the region. When major basic industries cannot sufficiently absorb the labor force, non-basic industries, those industries with forward/backward linkage, are normally expected to act to absorb labor force. In the 11th Five-Year Plan, however, Inner Mongolia was regarded as a developing base area for heavy industry, agriculture and livestock, and as an area to provide energy and raw material to the Beijing/Tianjin economic zone. Within the framework of economic development based on a regional division of labor, light industry, which would be high in labor absorption in Inner Mongolia, would not be able to develop. According to the inter-industrial relation table shown in Figure 5, none of the major basic industries of Inner Mongolia are directly related to tertiary industry, which has a larger labor absorption capacity, producing little employment opportunity.

6. Conclusion

This examination has revealed that economic growth in Inner Mongolia is deeply related to the characteristics of the regional industrial structure. The basic industries of Inner Mongolia are the mining, electric power, iron and steel/metal-processing, and chemical industries, which are all strongly related to one another, offering the multiplier effect of economic growth to the region. Such characteristics of industrial structure are supposed to be principal factors for the achievement of the rapid economic growth of Inner Mongolia.

Not being labor-intensive, however, these basic industries can hardly be expected to absorb labor force. With the advance of regional differentiation, the development of light industry with high labor absorption and of forward-related industry, that is, tertiary industry, is limited, blocking labor absorption. In this industrial context, rationalization of the employment structure of primary industry has been promoted, and labor force eliminated from the agriculture and livestock industries has served to raise the unemployment rate.

To resolve unemployment issues, therefore, it is important to develop light industry that can meet regional needs. This would promote the development of tertiary industry and, consequently, employment in the region. The mining, agriculture and livestock industries are foundations for industrial linkage in Inner Mongolia, where no other industries would develop in their absence. It is, therefore, thought that the sustainable development of Inner Mongolia depends on the successful achievement of rational development and environmental protection (regarding cultivated land and grassland).

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