

Increasing Cities and Shrinking Regions

(Increasing Cities and Shrinking Regions: Migration in China's Urbanization— —Cases from Sichuan and Henan Provinces)

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1. Migration and China's Urbanization

In the past 30 years. China has put forward the urbanization in an amazing speed. From 1978 to 2011, the level of Chinese urbanization increased from 17.92% to 51.27%, urban population increased from 172.45 million to 690.79 million. The urbanization level increased 1.01% one year and population in city and town grew 15.71 million per year. The Urbanization is an inevitable end of migration from countryside to city. Likely, high-speed urbanization in China accompanied with a huge amount population migration as well. In the past thirty years, natural growth rate of urban population was less than 10% (National Bureau of Statistics of China 2012a); thus the main part of Chinese urban population growth was the migrant population from countryside to city.

Under the special household registration system in China(that is, agricultural population and non - agricultural population registration system), some of migrants from countryside can become non - agricultural population which means permanent residence in city while others can only obtain employment without the registered non-agricultural Hukou, which are called rural migrant workers. From 1978 to 2010, urban registered non-agricultural population increased from 152.30 million to 459.64 million(National Bureau of Statistics of China 1999,2011); while rural migrant workers increased from 20 million in 1983 to 242.23 million in 2010(National Bureau of Statistics of China,2012b). Both population increase caused the rapid expansion of urban population in China. According to China's Sixth Census in 2010, there were 231.31 million flowing people in cities and towns, which accounted for 34.5% of Chinese total city residential population. The rural migrant workers who cannot obtain permanent residence have become a very important part of Chinese urban population. Since these people cannot completely integrate themselves into urban society only being migrant population between cities and countryside, inadequate urbanization(Tang 2009,Hu SL2012) comes into a specific phenomenon in China.

There are two moving directions of migrant people: movement to nearby cities and to long-distance cities. According to migration workers monitoring and investigating report 2011, number of migration workers from countryside to nearby cities was 88.88 million and the number of long-distance movement migration workers was 153.35 million in 2010. The census 2010 of China indicates, there were 260.94 million migration people in 2010, 15% of them was moving inside the city they registered in, 52% was moving inside their registered province, while 33% was moving from their registered province to the other province. Data from these two different sources fit well, and both indicate total amount of Chinese migration population has already reached 0.22 billion and above.

For across-province migrants, developed provinces or cities like Guangdong, Zhejiang, Shanghai, Beijing and Jiangsu etc. are the main destinations. Relatively economically undeveloped but with huge population provinces are the headstream such as Anhui, Henan, Sichuan, Hunan, Hubei, Jiangxi etc. The across-province emigrants from Anhui, Henan and Sichuan were above 8.6 million(The Census Office of the State Council and National Statistics Bureau of China 2012).

Thirty years of huge population migration has gradually caused the reconstruction of population distribution both in urban & rural areas and in east and middle-west regions.

2. Growing Cities and Shrinking Regions—Population Reconstruction in the Middle-west Provinces of China

Middle-west provinces are the main source of emigrants in China. Since 2012, author of this paper had been participating into two important regional and city planning projects, City System Plan of Sichuan Province and Xinyang City Master Plan in Henan Province. Analysis of historical population development and forecast of future population distribution are major elements in these projects. And a new population phenomenon in middle-west provincial migrating was found, that is the phenomenon of increasing cities and shrinking regions.

2.1 Sichuan Province

Sichuan is one of most populous provinces in the west of China. It also has the largest emigrating population in the west provinces. Since the large - scale development of China's western region from 2000, a large number of infrastructure projects were put into western regions. Meanwhile, preferential policies in terms of tax and industries were given to the western region(Chen SZ2010). In this context, Sichuan Province had entered into the rapid growth period of urbanization since the year 2000. From 2000 to 2010, the urbanization rate of Sichuan Province increased from 27% to 40% (The Census Office of the State Council and National Statistics Bureau of China2002, 2012), and the average increase rate is 1.3% per year. However, the population structure changes more complexly along with the rapid growth of urbanization.

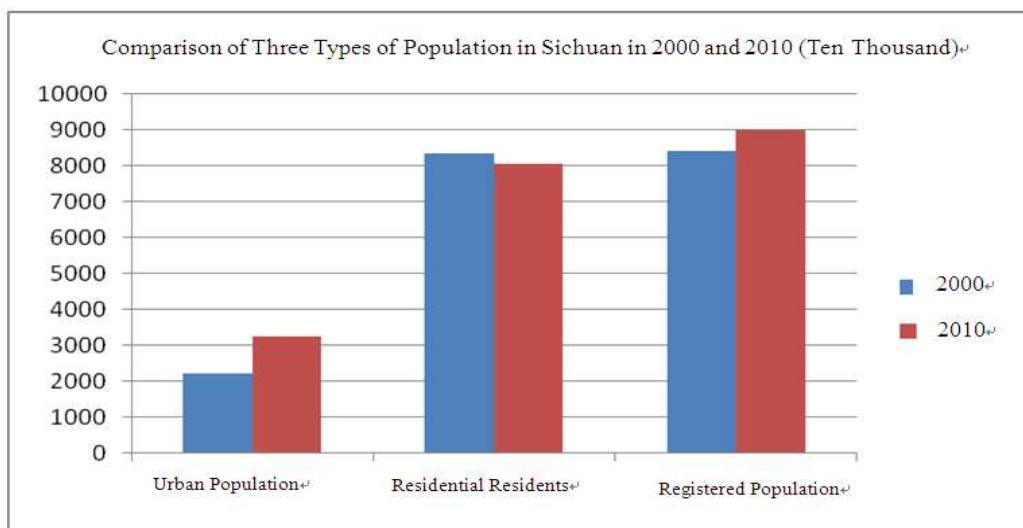


Figure 1: Comparison of Three Types of Population in Sichuan

From 2000 to 2010, the urban population of Sichuan Province increased from 22.23 million to 32.31 million, the residential population decreased from 83.29 million to 80.42 million, and the registered population increased from 84.02 million to 89.98 million (The Census Office of the State Council and National Statistics Bureau of China2002, 2012). During the ten years, the registered population was relatively stable while the residential population was decreasing, which means a large number of people moving out to the other province. And the net outflow population number increased from 3.67 million to 9.57 million. Then, the rapid-growth urban population was in great contrast with the decreasing residential population. The reason why urbanization rate grown so quickly is, that the decreasing residential population was used as the denominator of urbanization population.

In Sichuan Province, there are 21 city areas which centered around the core cities and form into uniform administrative unities and economic areas. As figure 2 showed, 16 of 21 city areas had the similar shrinking phenomenon of residential population as Sichuan Province. There are only 5 areas different from Sichuan Province. One is Chengdu, the economic center and capital of Sichuan Province. The other three are Aba, Ganzi and Liangshan areas, which locate on the edge mountain regions of the administrative districts of Sichuan Province (The Office of the Population Census & Bureau of Statistics of Sichuan Province2002,2012).

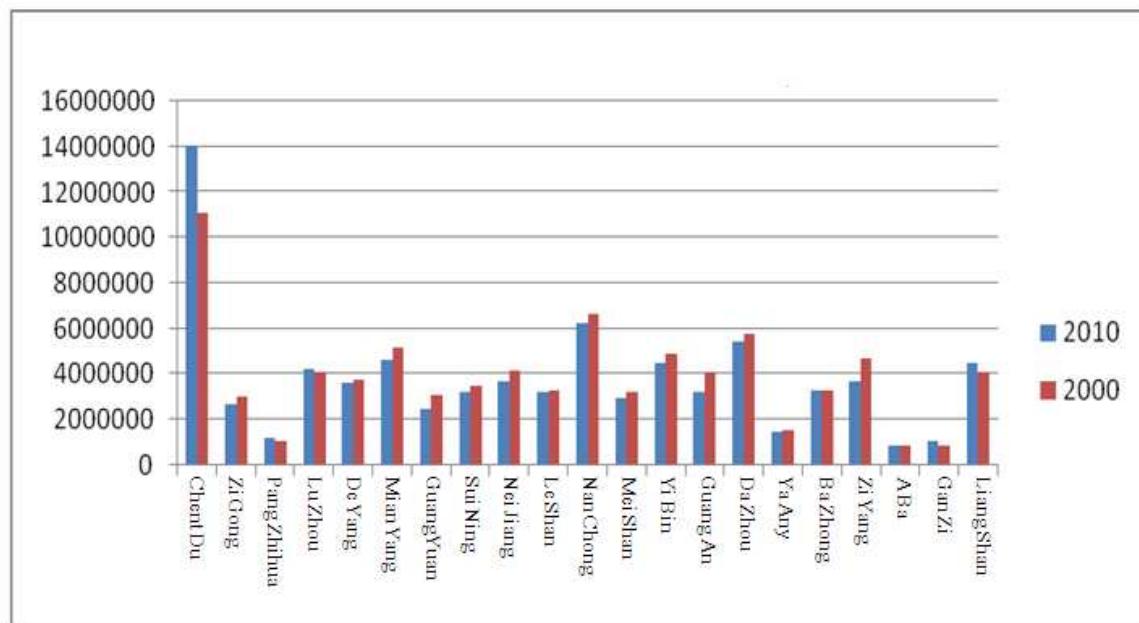


Figure 2: Comparison of the Residential Population in Different Areas of Sichuan

Data source: 2000,2010 census of Sichuan Province

The emigrant phenomenon was more serious when compared the registered population with the residential population of each city area. Apart from Chengdu city, all the other city areas had population shrinking phenomenon with less residential population than registered population. However the urban population in all the areas had showed a trend of rapid growth.

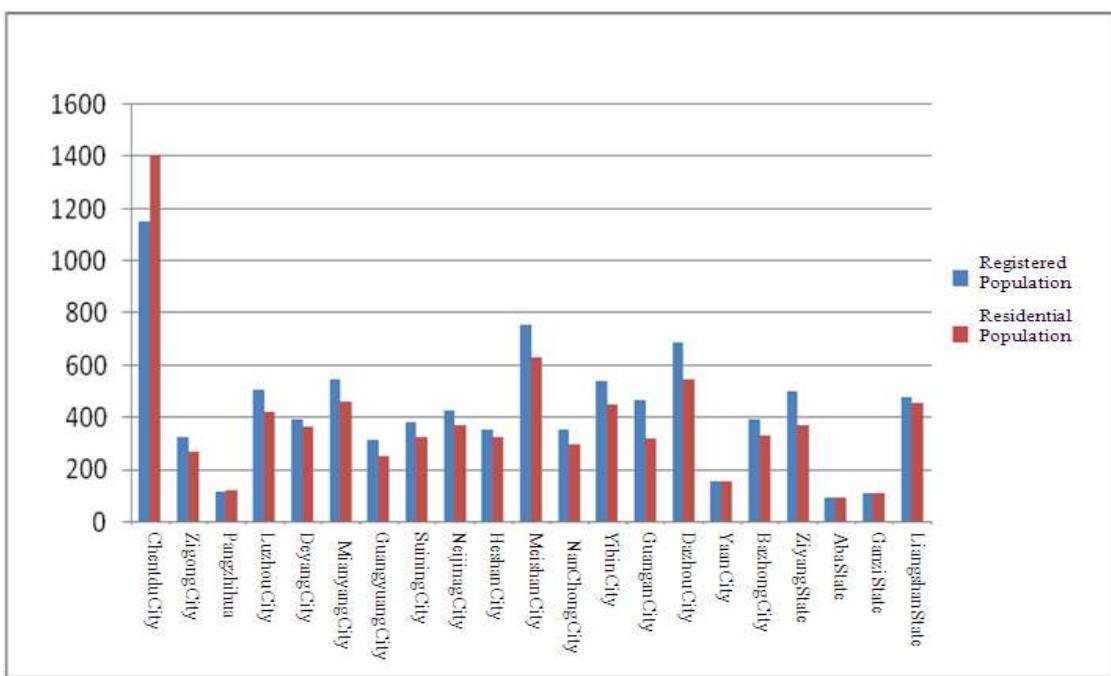


Figure 3: Comparison of the Registered Population and Residential Population in 2010

Data source: 2000,2010 census of Sichuan Province

2.2 Xinyang City in Henan Province

Henan Province is both populous province and large emigrating province. Xinyang is the southeast city of Henan Province with registered population of 8.46 million and residential population of 6.11 million. The net emigrating population is 2.35 million, accounting for 28% of the total registered population. From 2000 to 2010, the registered population of Xinyang

increased from 7.66 million to 8.46 million, while the residential population reduced from 6.53million to 6.11million (Office of the Population Census of Xinyang City2002, Xinyang City Bureau of Statistics & Office of the Population Census of Xinyang City 2012).

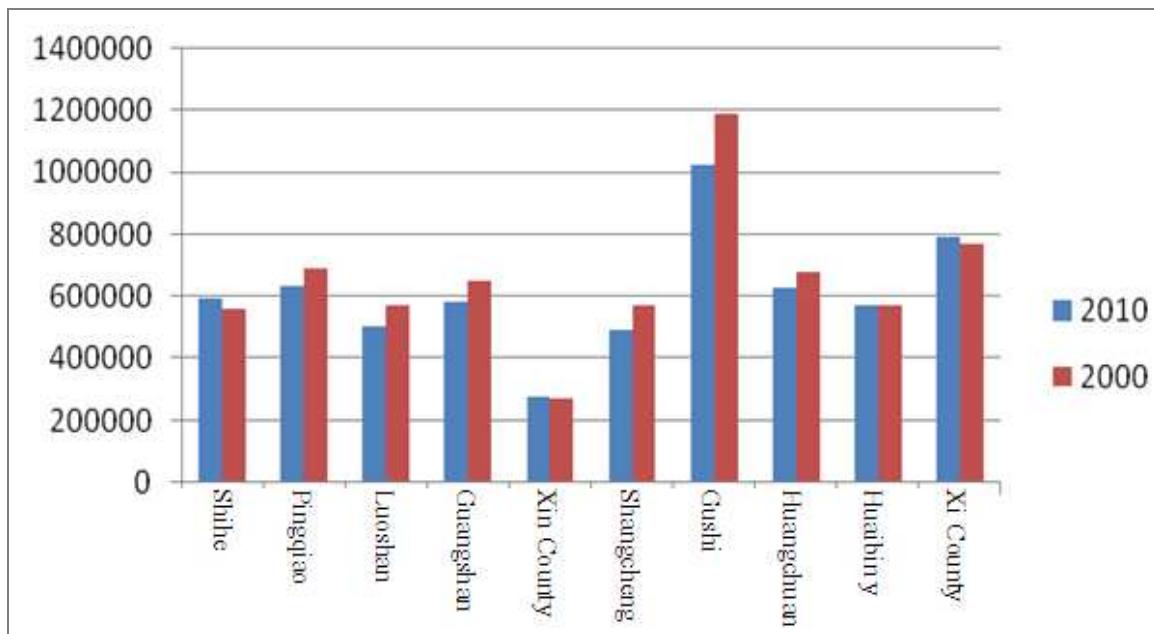


Figure 4: The Residential Population of each area in Xinyang's Jurisdiction
Data Source: 2000,2010 Census of Xinyang City

Prefecture-level Xinyang City possesses two districts and 8 counties. The situations of population distribution of these districts and counties are alike. Most districts and counties has occurred absolute loss of residential population. On the contrary of residential population' loss, the urban population of each area had a trend of rapid growth.

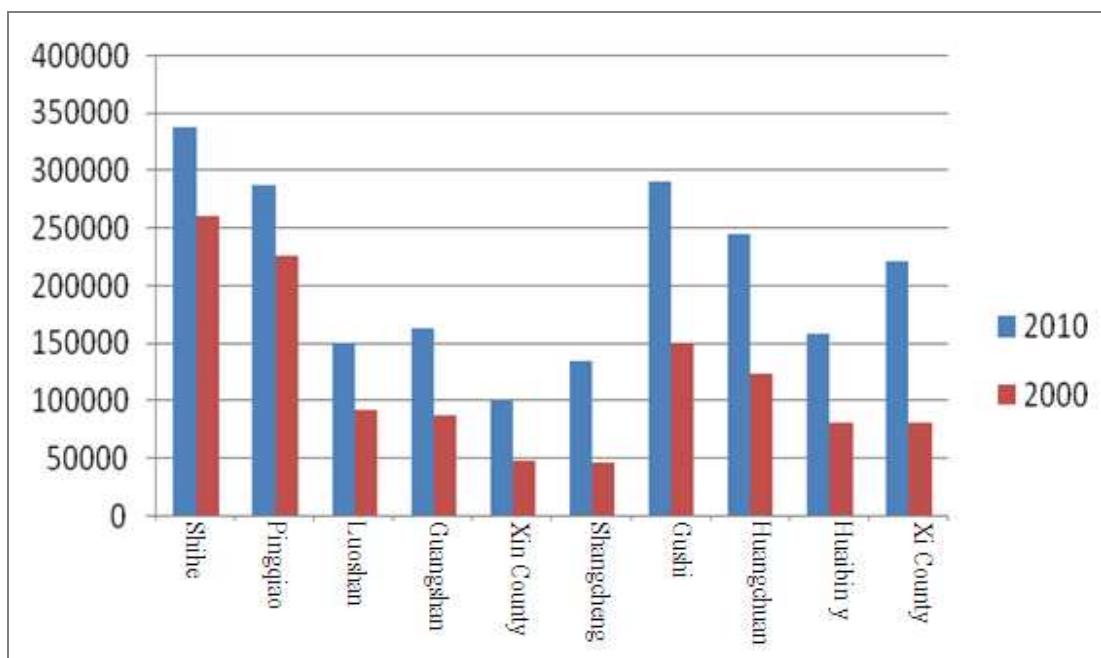


Figure 5: The Urban Population of each area in Xinyang's Jurisdiction
Data Source: 2000,2010Census of Xinyang City

Xinyang is adjacent to Anhui and Hubei province. We can see that the population loss phenomenon in almost the whole surrounding areas in Henan, Anhui, Hubei and Shanxi province with the exception of the capital cities, Zhengzhou, Wuhan, Hefei and Xian city. The aggregation and loss of population in central cities and surrounding areas constitute the spatial pattern of increasing cities and shrinking regions.

Generally speaking, no matter in Sichuan Province or in Xinyang city area, the loss of people includes two aspects: Firstly, the massive emigrating population caused the residential population less compared with registered population. Second, the residential population had the trend of absolutely decreasing.

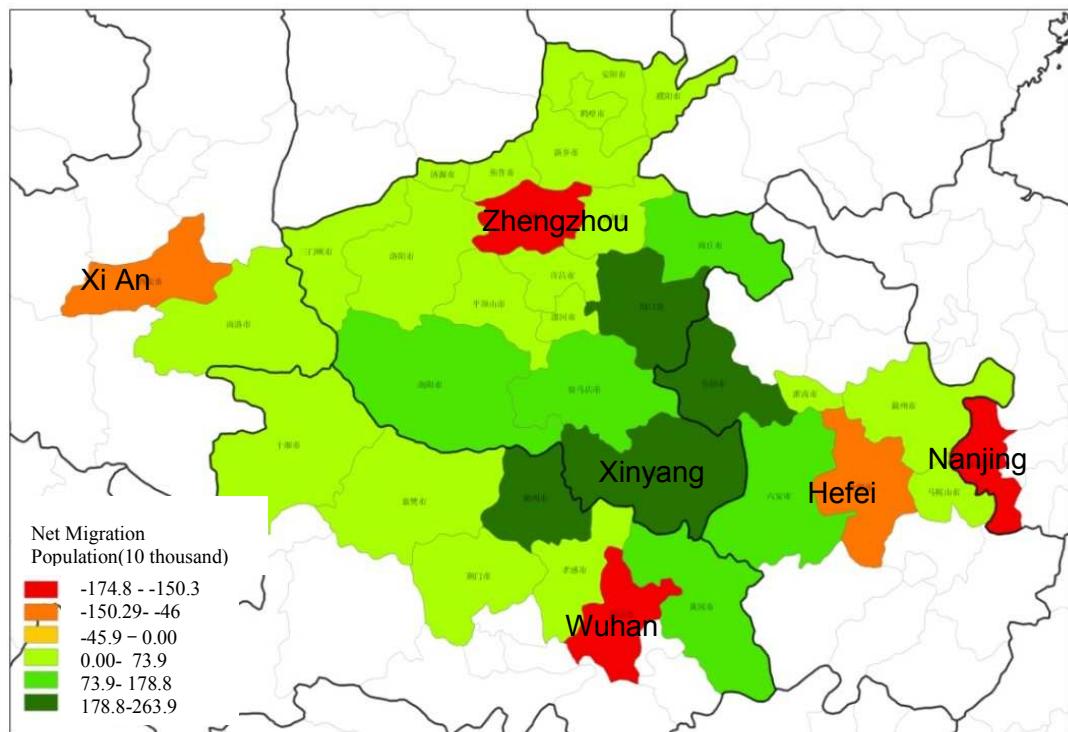


Figure 6: Population Loss and Aggregation Pattern in Xinyang and its Surrounding Areas (2010)
Data Source: 2010 Census of China

3. Population and Economy Analysis of the Shrinking Region

The impact of population migration on the society and economy is an important research topic in the fields of sociology and geography. Domestic academic circles have carried out extensive researches. From the perspective of the impact on the regional development, one view is that the population flow can enlarge the regional economic disparity(Hu 1995,Duan 2005); the other view is that the population flow can narrow the regional economic disparity(Liu2001,Wang2001). The above researches are analysis of the whole country using the province as analysis unit. In this article, the view focus on Sichuan Province, analyzing the residential population and the average GDP per person in 2000 and 2010 so as to measure the impact of the population distribution and change trend on the economy and other aspects.

3.1 The Rising Centralization of the Population

For the province with large outflow population, the population flow from the backward areas to the developed areas inside and outside of the province, causing population reconstruction. The Lorenz Curve was prepared according to the census data of 21 cities and regions of Sichuan Province in year 2000 and 2010.

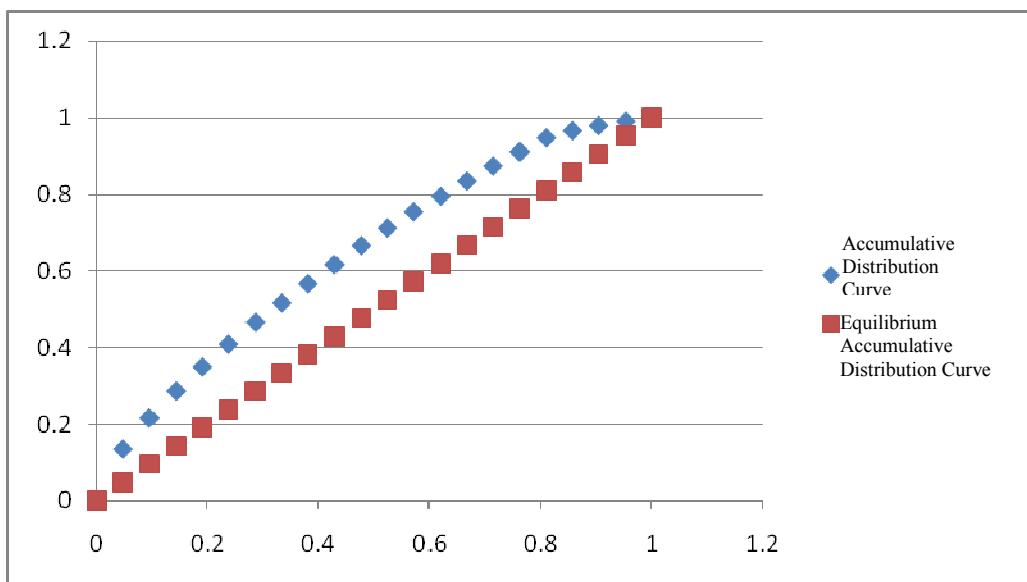


Figure 7: Lorenz Curve of Population Distribution 2000 in Sichuan Province

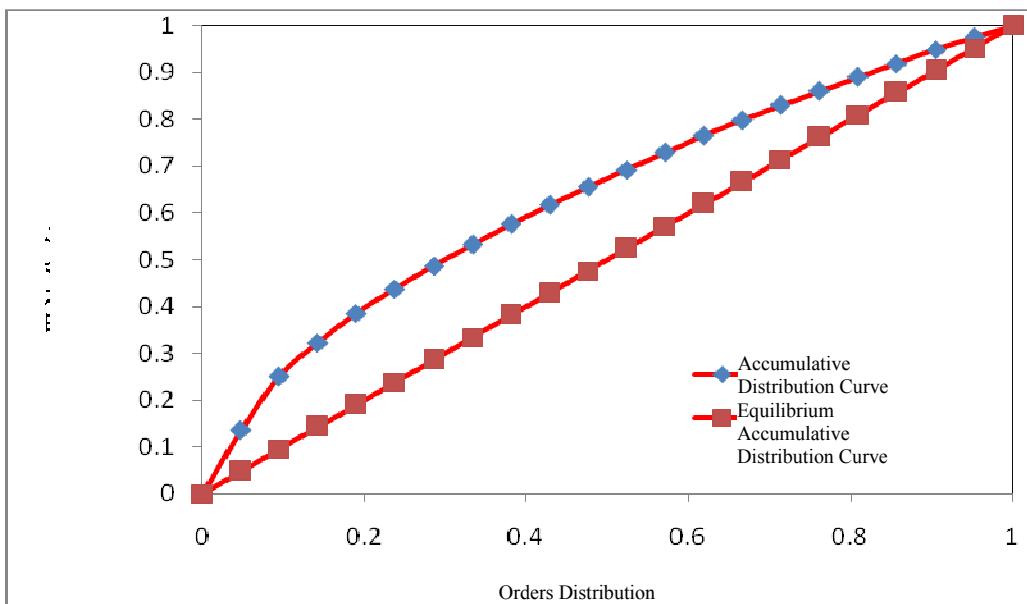


Figure 8: Lorenz Curve of Population Distribution 2010 in Sichuan Province

Using the index of concentration (the equivalent of Gini coefficient based on Lorenz curve) and equilibrium (based on entropy definition of Shannon information), measure the changing trend of population distribution(Chen YG2010). From year 2000 to 2010, the centralization index of Sichuan population increased from 0.298 to 0.327, but the equilibrium coefficient decreased from 0.951 to 0.938. The largest city Chengdu has the population proportion increased from 13.5% to 17.5%. Comparing with the second largest city Nanchong, the population scale of Chengdu rose from 1.66 to 2.24. The population of the province is further concentrating into Chengdu City.

3.2 The Distribution of Economic Growth Level being Even

On the condition of population spatial reconstruction, what happened to the economic growth levels in different cities and regions of Sichuan province? Using the per capita GDP in 2000 and 2010 to draw the Lorenz curve so as to describe the changing trends of the economic growth levels.

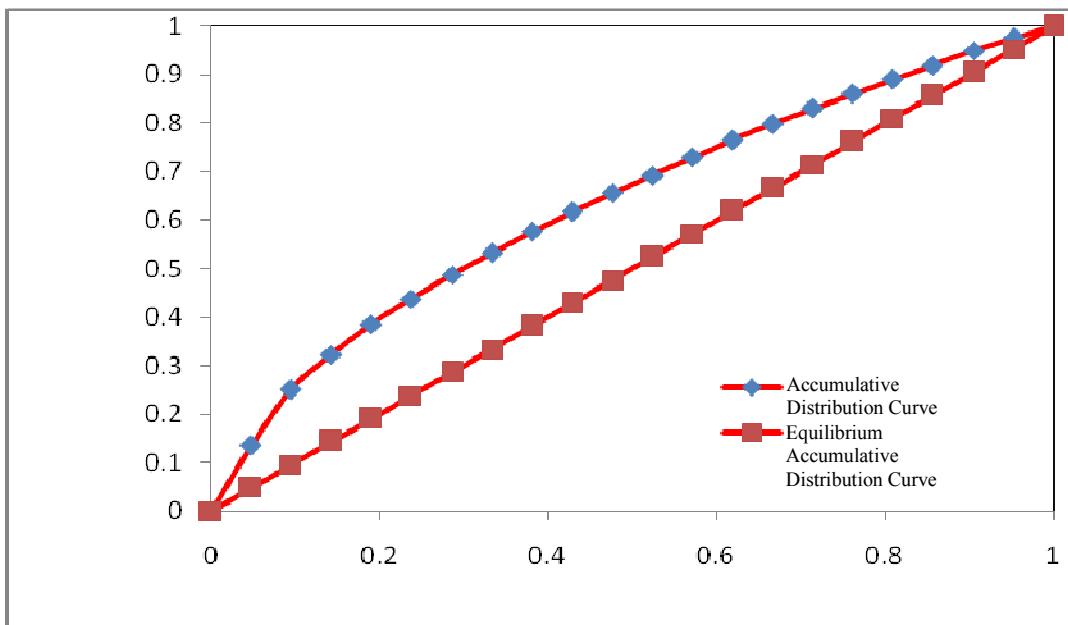


Figure 9:Lorenz Curve of per capita GDP2000 for the Cities and Regions in Sichuan Province

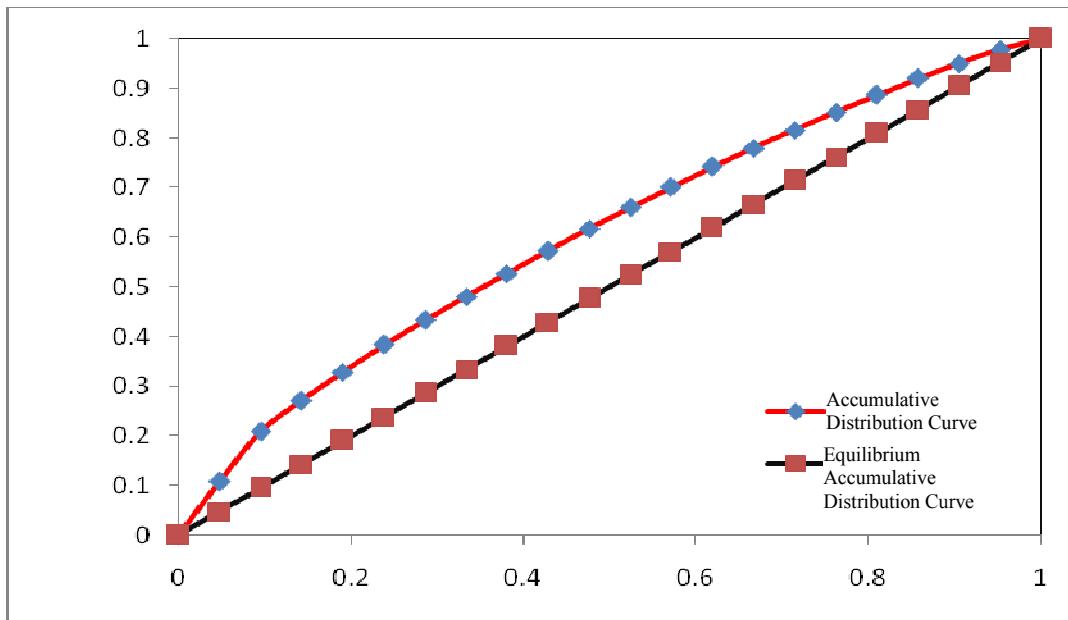


Figure 10:Lorenz Curve of per capita GDP2010 for the Cities and Regions in Sichuan Province

As the above Exhibits shows, the space between the cumulative distribution curve and equilibrium distribution curve of per capita GDP narrowed from 2000 to 2010. The centralized index of per capita GDP decreased from 0.281 to 0.222, the equilibrium increased from 0.956 to 0.973, which showed that the difference of the average output per person has narrowed and the economic growth level in different regions and cities tends to be even.

3.3 Regression Analysis of Population and Economy Distribution

The centralized population and the even distributed per capita income showed that population may flow due to the uneven distribution of the per capita income. Using population absolute growth rate, per capita GDP in 2000 and 2010, the absolute annual growth rate of per capita GDP, relative annual growth rate of GDP, population in 2000 and the unique nature of the city (The provincial capital and minority nationalities area capitals should be represented by "1", the rest should be represented by "0") as the dependent variables, carry out the multiple linear regression with SPSS. Only three variables retained which were per

capita GDP in 2000, the unique nature of the city and population in 2000. So the standard regression model is:

$$\text{Population growth rate} = 0.482 * \text{GDP2000} + 0.499 * \text{special city nature} + 0.299 * \text{population2000}$$

It can thus be seen that:

(1) The nature of the city has the greatest impact. The standard regression coefficient is 0.499 and the corresponding partial correlation coefficient is 0.739. The population of Sichuan mostly migrated into the provincial capital city Chengdu, and the minority nationalities are migrating into their respective regional capitals.

(2) The second important factor is the per capita GDP in 2000. The standard regression coefficient is 0.482 and the corresponding partial correlation coefficient is 0.707. Sichuan population has a trend of migration into the city having high in average GDP per person.

(3) The population in 2000 also has some impact. The standard regression coefficient is 0.299 and the corresponding partial correlation coefficient is 0.537. This showed that the area with larger population has more attractiveness to the migration population.

What deserves attention is that the model only reflected the factors that affected the migration of the population in the last ten years in Sichuan Province. The per capita GDP in 2000 affected the migration of the population, but the average GDP per person in 2010 has no obvious impact because the impact of year 2010 can only be showed in the future after year 2010. Provided that the differences of per capita incomes lead to the population migration, what impact does it have on the population migration with the narrowed difference of per capita income, what will happen when the centralization of residential population has risen.

3.4 Emigration's Impact on the Society and Economy of the Shrinking Region

(1) Imbalance of population's age constitution and lack of labor resources

The young male workers are the main part of migrant, and the age and sex structure will get imbalanced after they moved out. Female, Children and the elderly are left behind to form the new population so the dependent ratio gets high and the sex ratio gets low. The young labors are in shortage.

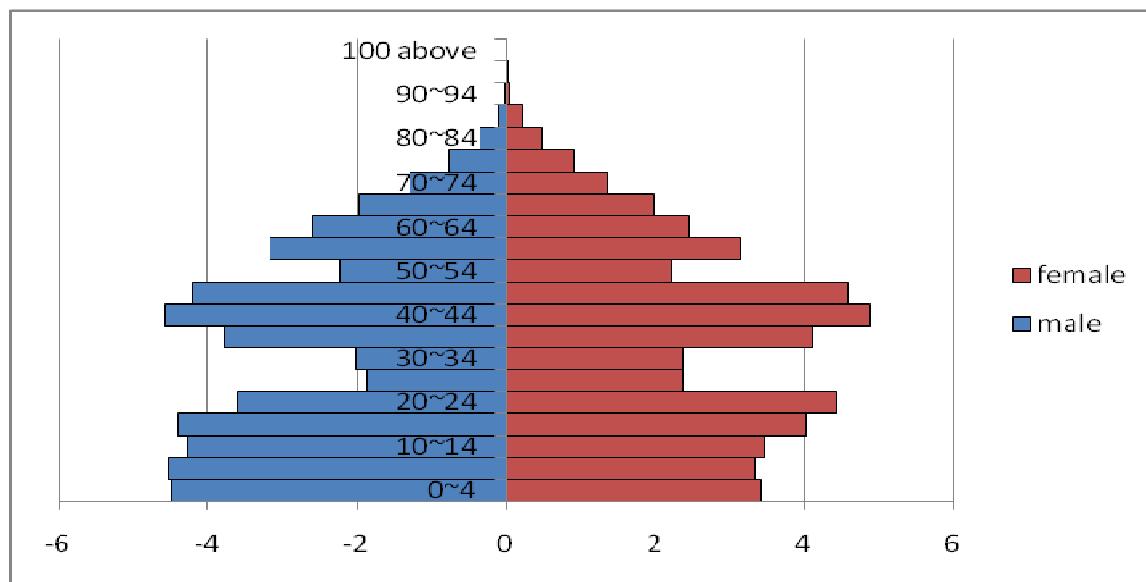


Figure 11: The Age and Sex Structure in Xinyang City (2010)

Data Source: 2010 Census of Xinyang City

According to the 2010 census of Xinyang City, population at the age of 0-14 years old account for 23.51% of the total population, population at the age of 15-64 years old account for 66.96%; and population above the age of 65 years old account for 9.53%. Compared with the national level, the population of Xinyang at the age of 15-64 years old is lower by 7.5%.

The population of Sichuan at the age of 20-34 years old accounts for 19.6% of the total population, while the population at this age stage in the whole country account for 24.4%. The dependency ratio is 49.3% in Xinyang, 38.73% in Sichuan and 34% in the whole country. Large-scale population flow-out leads to sex ratio decline. The sex ratio of Xinyang in 2010 is 100.77, which is lowered by 5% compared with the sex ratio of 2000, and lowered by 4.5% compared with the national average level of 105.2. The sex ratio of the total population of Sichuan is lowered to 103.14 from 106.98 in 2000, and is lower 2% than the national sex ration.

(2) Considerable economic gains and huge social costs

In the process of urbanization, the traditional agricultural society is inevitably transformed into the urban society with the rural population migrates into city and town. However, the rural migrant workers have paid high cost of the society while got better economic condition under the special Household registration system in China.

The moving population would find new jobs out of the rural areas which means the rural labor force can be fully used. With the increase of rural family income, the life of the farmers has been improved and countryside got some new impulse because of funds, technologies, experiences taken back by rural migrant workers(Cai&Bai2006). However, the outflow population causes the rural population aging and the education problem of the left-behind children(National People and Family Plan Committee2012). The talents in the rural migrated and the labor force is in shortage in rural area, which is not conducive to the agricultural modernization. The huge migrated population result in the gradual depression of the rural society(Ma2006). The migrant workers cannot enjoy the equal living conditions of the city residents and the same level of social securities. For the same incomes, they have to pay more social price of family separation, spirit wandering and belonging sense missing.

(3) The negative Impact on the economy of population loss area began to appear

Generally speaking, the population migrating from the low income area into the high income area and from the insufficient jobs area into the adequate jobs area is conducive to the overall national economic growth and can maximize the utilization of the human resources. The recent study carried out by Xiaomin Du et al(Du2010) showed that the migrant workers made contribution to the economic growth of the East China, but for the West China, the migration caused mild decrease which means the negative effects of the labor force outflow has began to show up in the local area.

Locateing in the central region of China, Xinyang City is at the beginning of reply to the coastal industry transfer. There are a large number of young migrant workers immigrating out of Xinyang every year, and now the local newly emerging industries face problems of labor force shortage and high cost labor force. The labor force costs 150 yuan per day per person in Xinyang City which is equal to the construction worker cost in Beijing¹.This will increase the cost of the improvement in the developing areas and slow down the economic growth steps.

4. Prospects and Suggestions

4.1 Prospects of China's Population Migration Pattern

China is now in an important transition period of social and economic development. The export-oriented economy of the coastal areas is being affected by the international economic crisis, and the industrial development has a trend to move from the coastal areas over to the inland areas, which will guide a new population migration pattern.

Shown in Chinese Migrant Workers Monitoring and investigating Report 2012, the rural migrant workers working in the East China account for 64.7% of the total amount in 2012, which is lowered by 0.7% than last year; the migrant workers working in the Mid China account for 17.9%, which is increased by 0.7% than last year; the migrant workers working in the West China account for 17.1%, which is increased by 0.4% than last year. The migrant workers working in the Pearl River Delta and Yangtze River Delta respectively account for 23.1% and 20.1% of the total amount, respectively lowered by 0.9% and 0.8% than last year. Along with the rapid growth of mid and west China, The incomes of the rural migrant workers

in different areas tend to be equal. The attractiveness of Pearl River Delta and Yangtze River Delta to the migrant workers is in gradual decline.

The migration population of Xinyang area is 930,000 in 2000, and reaches 2 million in 2005 and 2.36 million in 2007. And after 2007, the migration situation became steady without increasing and the rapid growth trend of population outflow(Xinyang City Human resources and Social Security Bureau & Xinyang City Migrant Workers Office2012). "Affected by the economy environment this year, the main strategy of our company has been adjusted from "Stable, Healthy and Developing" to "Stable and Healthy", "Developing" is no longer the company's goal", citing a Beijing construction project leader who is in charge of organizing migrant workers from Xinyang.

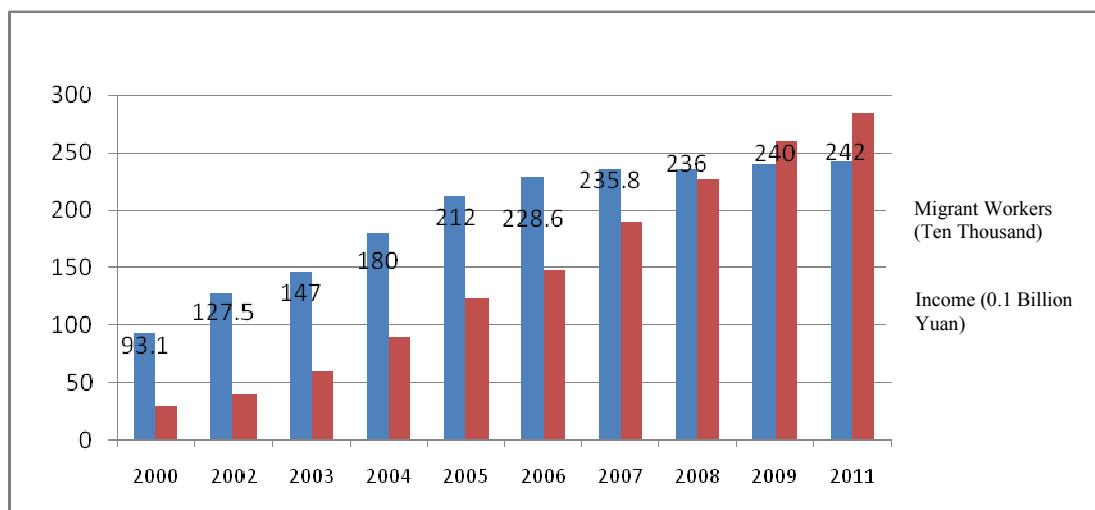


Figure 12: Migrant Workers Amount and Income Status From 2000 to 2011 of Xinyang City

Shown from the questionnaire survey to Xinyang migrant workers in construction and food service industries in Beijing, return to the local county town in Xinyang was the main direction of the rural migrant workers in the future. More workers prefer to stay in Xinyang if the same working opportunities are provided.

It is predictable that the massive migration workers' pattern in China will be changed along with the adjustment of the Chinese industrial distribution and the economic growth focus moving westward. The rural migrant workers growing older will return to their native areas and join into the construction of the local city and town. The newly increased migrant workers will mainly search jobs near their home town and get used to the new life of nearby cities or towns, where can realize the unification of the real urbanization with local citizen identity.

4.2 Suggestions for the Coming Migration in Urbanization

(1) Encouraging the migrant population flow back

The local government should realize the significance of human resources to the long-term development of local economy. They'd better encourage the migrant population flow back instead of encouraging the export of the labor sources. Then the rural migrant workers can realize their urban dream in nearby cities and towns instead of being the "amphibians person"(Qin2008) between rural and urban.

(2) Implementing of spatial equilibrium strategy

In the past, un-equilibrium strategy was dominant in the regional development and regional planning(Li2009), which leads to the migrants concentrated into capital cities, centre cities and large cities, causing increased housing price, resources shortage, traffic congestion and a series of urban diseases. According to the questionnaire of the migrant workers, the main direction of the rural migrant workers return is the county towns/cities. These towns/cities both have the advantages of low costs and perfect social networks. To cope with this return trend, the relatively balanced spatial development strategy should be adopted. Multiple centers' development strategy should be encouraged more than single center development strategy in the urban and regional planning.

(3) Strengthening the industrial development in urbanization

Industry development is the driving force of the urbanization. In the past ten years, the urbanization focused too much on the real estates and the infrastructure construction, and the industries development was neglected. The job opportunities and the income disparity are the primary reasons that attract the migrant workers. To draw the rural migrate workers back, the local government should change their focus on the development of real economy to create more job in cities and towns, which is the strategy of “keep urbanization and industrialization interact together”(Hu JT2012).

(4) Accelerating the step of City System Reform

The last strategy is to accelerate the city administrative system reform, change the city management system from the top to the bottom. Through this system reform, the local cities can make their own decision for their development without the intervention of higher cities for their own interests. Specifically, the reform include the system of city leading counties, opening the system of county changing to city etc. When grass-roots city development rights are respected and most county towns improved the living condition, the moving people can go back to their home town and stay forever.

5. Conclusion

The massive migration from countryside to city helped China to become an urban country in an amazing speed. However, there are more than 0.22 billion rural migrant workers moving between cities and countryside which leads to not only the inadequate urbanization of China but also the reconstruction of population.

Migrant directions included both the movement from countryside to nearby cities and the movement from countryside to long-distance cities. Most of the out-flow areas faced the loss of residential population while the local city/town still in growth. So the phenomenon of increasing cities and shrinking regions lies in different scales of county, prefecture-level city and province in Chinese West-Middle regions.

Mathematic analysis of population and economy in population loss area shows the centralization of the population has risen, while the distribution of per capita income tends to be even. The factors of the city nature, per capita GDP in 2000, population in 2000 have great impact to population growth rate of different areas.

Migration's impacts on the population loss areas are complex. While achieving the economic gains to rural family and area, the social costs of emigration seems higher and longer. And the negative impacts on the economy of the population loss area begin to appear.

China is facing the transition of social and economic development which will lead to the change of migration pattern. The massive and long distance flowing will be gradually replaced by the nearby migration. Local cities/towns will be the main settling place of rural migrant workers.

Finally some suggestions are given to cope with the coming migration in urbanization, such as encouraging to draw back the migrant population, implementation of spatial equilibrium strategy, strengthening the industrial development, and acceleration the step of the city system reform, etc.

Endnotes:

1Acquired by the author from the social investigation to the migrant worker of the Xinyang City

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