New cooperation mode and characteristic development of "The Belt and Road" node cities: A case study of Henan Province, China

Pei Xuesheng • Wang Jieyu

Henan University of Science and Technology, Luoyang, China.

*Corresponding author. E-mail: pxsh12@126.com.

Abstract. The strategic distribution and implementation of "The Belt and Road" has accelerated the reform and development of the related cities along the road. Under the new strategy, these cities with respective characteristics and advantages give full play to their advantages to form a radioactive resource sharing with surrounding cities resources and establish a new mode of city cooperation. The characteristic cooperation and development mode of the urban agglomeration in this region breaks down the cooperation and competition relationship between traditional cities, but also establishes a clear and consummate direction for the development of urban industries, which makes each city special. The related cities should have their own characteristics and keep pace with the times, but also cannot blindly follow the situation. According to their own situation, each city should adopt sustained long-term development and multidimensional cooperation mode to promote the linkage of resources among different industries.

Keywords: City, radioactivity, resource sharing, multidimensional cooperation.

INTRODUCTION

The rapid development of cities in Central Plains cannot be separated from the national policy deployment. "The Belt and Road" policy is a good opportunity and its contents should be firmly grasped and implemented practically. Henan Province, as an important transportation hub, running through the four corners of the world, develops its strong industries in combination with its own advantages and regional characteristics. Henan Province takes the east-west Longhai railway line as the main horizontal line, and the Beijing-Guangzhou line as the main vertical line. Besides, it takes the provincial capitals and prefecture-level cities as the nodes, the vast rural areas and the surrounding areas as the hinterland. Therefore, it is a radial and special economic zone, which is one of the key strategies for China to implement the Central Plains economic development. There is no doubt that the full rise of the two routes relies on the development of central cities. Because all kinds of regional central cities of different levels are distributed in a large span on this zonal integrated transportation channel, the central cities of these regions are node cities (Fang and Zhang, 2003). Additionally, the development strategies and economic conditions of cities at all levels are different, so it is necessary to make clear the development direction of the cities when relying on central cities.

THE OVERALL CHARACTERISTICS OF URBAN DEVELOPMENT AND LAYOUT IN HENAN PROVINCE

Geographical position

Henan is the develop subject of the nation strategy of the

Central Plains Economic Zone. As the inland open economic highland established by "The Belt and Road", Zhengzhou, the provincial capital, is not only the geographical center of China but also that of Asia. From the distribution situation of Chinese urban agglomeration, the Central Plains urban agglomeration, centered on Zhengzhou, is located between Beijing-Tianjin-Hebei urban agglomeration and the middle reaches of the Yangtze River urban agglomeration. It connects with Guanzhong urban agglomeration in the west and Shandong Peninsula urban agglomeration in the east. From the strategic layout of regional development, the Central Plains Economic Zone, with Henan as the main body, links the Beijing-Tianjin-Hebei Cooperation Development Zone to the north, the Yangtze River Economic Belt in the south, the Silk Road Economic Belt to the west, and the 21st Century Maritime Silk Road to the east. Henan is the cross center to connect the east, west, north and south (Cui and Cui, 2016).

Distribution of urban agglomerations

With a land area of 57,800 km, central urban agglomeration in Henan is centered on the provincial capital Zhengzhou, including other provincial cities like Kaifeng, Luoyang, Xuchang, Pingdingshan, Jiyuan, Xinxiang, Jiaozuo, and Luohe, and 14 county-level cities, 34 counties, 843 villages and towns. This is the initial core and embryonic form of the Central Plains urban agglomeration. At the end of the 1980s, some scholars began to study the urban development in this region. During the 8th Five-Year Plan period, the concept of "Central Plains Urban Agglomeration" has emerged. Since then, in the 10th Five-Year Plan and the 11th Five-Year Plan, the construction of urban agglomeration in Central China has been proposed as an important engine to lead the development of Central Plains region. The *Statistical Bulletin of Economic and Social Development of Henan Province in 2017* issued by the people's Government of Henan Province in 2018 shows that the overall economy of Henan Province grows steadily and level of consumption per person climbs (Qiu *et al.*, 2017).

Economic development

The Henan provincial government strongly carries out Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era, which fully implements the decision and deployment from the Party Central Committee and the State Council, and always adheres to the general keynote that makes progress while ensuring stability. With new development concept as the lead, the government focuses on improving the developing quality and efficiency and takes promoting the supply-side structural reform as the main line. In addition, it emphatically exerts advantages to use "Four CARDS",

actively promotes the four development strategies of "Three Regions and One Group", and carries out the "Four Great Battles" in a down-to-earth manner. The provincial economy keeps steady progress and good development situation, taking a solid step to build the overall well-off society. According to preliminary calculation, the province's annual GDP totaled 4.498816 trillion yuan, an increase of 7.8% over the previous year. The added value of the primary industry was 433.949 billion yuan, an increase of 4.3%, the added value of the secondary industry was 2.144999 trillion yuan, an increase of 7.3%, and the added value of the third industry was 1.919868 trillion yuan, an increase of 9.2%. The three industries structure is 9.6: 47.7: 42.7, and the proportion of the added value of the tertiary industry to the GDP increased by 0.9% over the previous year. The per capita GDP was 47,130 yuan, an increase of 7.4% over the previous year (Figures 1 and 2).

Growth rate of population

The total population of the province was 108.5285 million at the end of the year, an increase of 647,100 compared with last year. There are 95.5913 million permanent residents, an increase of 267,100 over the end of the previous year. Of these, 47.9486 million were permanent residents in cities and towns, and the urbanization rate of permanent residents was 50.16% which is 1.66% higher than that at the end of last year. The annual birth population was 1.4013 million, with a birth rate of 12.95 per thousand. The death population was 754,200, with a mortality rate of 6.97 per thousand, and a natural growth rate of 5.98 per thousand (Table 1).

Employment rate

In the whole year, 1.4421 million new employees were employed in cities and towns, 439,800 unemployed people were reemployed, and 170,000 people with difficulty in obtaining employment were reemployed. At the end of the year, the registered unemployment rate in cities and towns was 2.76% and the transfer employment of increased rural labor was 630,000. The total transfer employment of rural labor was 29.39 million at the end of the year, of which 17.62 million were transferred within the province and 11.77 million were transferred outside the province (Figure 3).

College talents

In the province, there were 44830 graduate students in school, 18352 students enrolled and 12933 graduated in this year. 2.0047 million general higher education students, 635,700 enrolled and 504,100 graduates. 282,200 adult higher education students, 125,000 enrolled
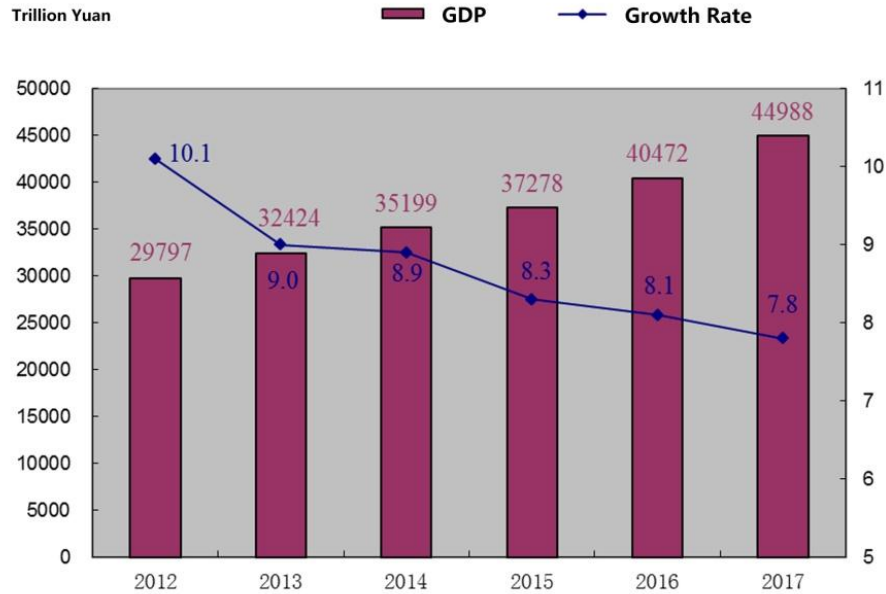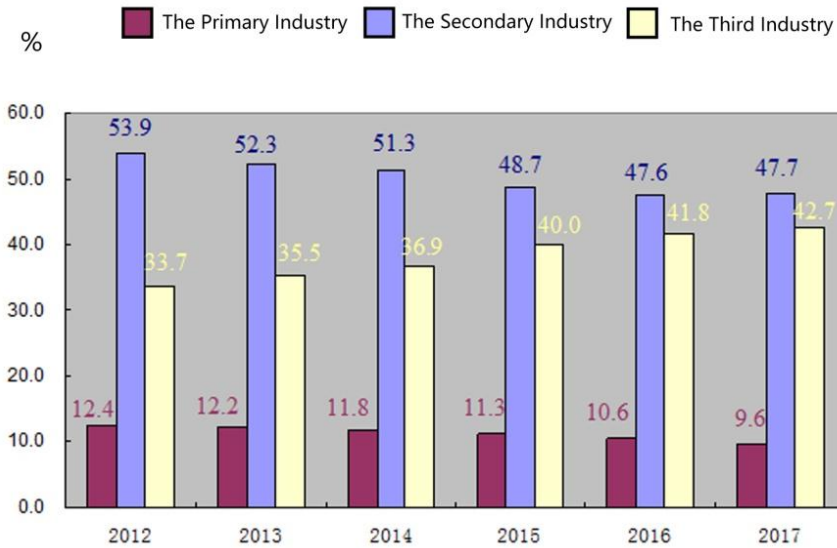
Figure 1. GDP and growth rate of 2012-2017.

Figure 2. Value added of three industries as a proportion of GDP of 2012-2017.

and 159,200 graduates.

ANALYSIS ON DIFFICULTIES IN URBAN CONSTRUCTION

Hybrid industry in urban

Existing industries in each city are hybrid without a prominent industrial model, so it is difficult to determine the research direction of industry. Like Yiwu in Zhejiang Province, its main industry is the wholesale of small commodities in which the additional industries include the production industrial blocks, the design industrial blocks, the sales areas, the material purchase blocks, and so on. The division of labor in the industrial model is clear and each block cooperates with each other to seek development. While each block has some disadvantages, such as single industrial category, single form, single talent introduction form, single sales model and so on, it is necessary to define a major industrial development model and direction, and strive for perfection on the macro level. Meanwhile efforts should be made to achieve the corresponding development of micro-industry, share the industrial chain with other cities and

Table 1. Population and composition at the end of 2017.

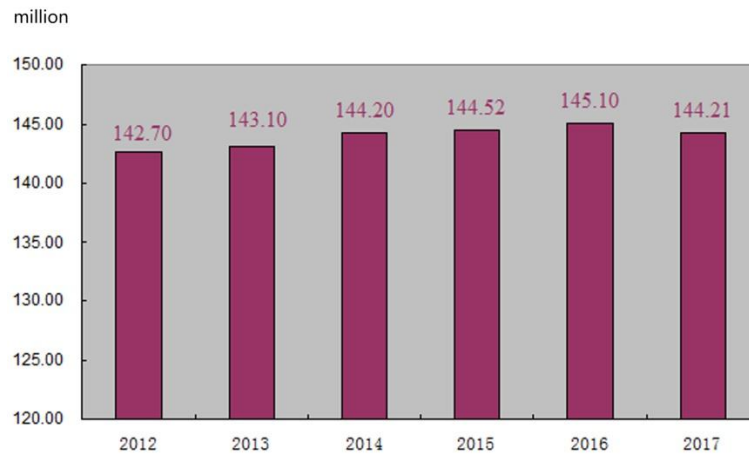| Index	Year-end population (million)	Proportion (%)
Total population	10852.85	-
Permanent population	9559.13	100.00
Town	4794.86	50.16
Country	4764.27	49.84
Male	4856.04	50.80
Female	4703.09	49.20
0-14 years old	2046.61	21.41
15-64 years old	6538.44	68.40
65 years old or above	974.08	10.19

Figure 3. New employment personnel in cities and towns in 2012-2017.

complement each other.

Scramble for talents between cities

It is inevitable for the development of each node city to introduce talents. In order to attract more talents, the central cities in each province are now trying to introduce various preferential policies. It is good for the development of the city to compete for talents while the chaotic scramble for talents is not good. It is necessary to rationally construct the structure of talent hub, strengthen the role of market allocation, optimize the environment of talent development, and speed up the mechanism innovation of talent system (Zhang and Li, 2017). It is important to do a good job of bringing in talents who are useful for the development of the industrial economy and have been strictly studied and trained, so as not to cause a waste of human resources and to set up a good framework of high-end talents in various industries. Talents who do not conform to the local development would rather not be introduced. Much effort should be made to form the talent sharing system between the node cities, ensuring the circulation and flexible usage of high-end talents.

Poor infrastructure in some cities

There is still a poor infrastructure in some node cities, which cannot meet the needs. It is in the stage of talents introduction of urban transition that the construction of infrastructure is very necessary and essential to display in order to attract development. The construction of infrastructure needs the support of the government, of course, which cannot be blindly constructed and needs a long-term plan with a reasonable overall layout like the cities of Wuchang and Hankou, which are linked to each other. Based on the condition that people work in Wuchang, but live in Hankou, its infrastructure planning is been carried out. A good job should be done to plan long-term and effective development and divide the basic functions of the urban areas clearly.

Weak enterprise competitiveness

From the overall situation of enterprises in Henan Province, the problems and shortcomings of enterprises in Henan Province in terms of market competitiveness mainly includes low productivity efficiency, small development scale, and low modernization level.

Moreover, scientific and technological innovation is backward and foreign economic ties are not close enough. In terms of enhancing enterprises competitiveness, the follow aspects of enterprises in Henan Province, namely the investment in scientific and technological innovation, the research and development of new products, the outward development degree of enterprises and the average market demand, are lower than those of the national average level. Compared with the developed coastal areas, the difference in the enterprise's competitiveness is mainly manifested in the production capacity and output value of enterprises, the scale effect of enterprises, the industrialization level, the innovation input and output, and the external economic relations and so on. Some factors like efficiency of enterprise scale, efficiency of asset utilization, low degree of enterprise extroversion, level of industrial development, ability of scientific research and innovation, and per capita market demand and so forth, have become the main restrictions to the promotion of market competitiveness of enterprises (Cui, 2015).

MULTIDIMENSIONAL COOPERATION MODE

On the basis of sharing

This paper discusses the development cooperation mode of new cities and puts forward the principle of cooperation based on sharing, which does not lose its own characteristics. As a new kind of urban component, sharing is a new mode of resource sharing, industry sharing and talent sharing between one node city and another node city because of adjacent location. The prefecture-level cities under the node cities also make the corresponding industrial upgrading or transformation adjustment, with high-end talents to pull the economy, actively explore the new modes of sharing mechanism, improve the stability and long-term effectiveness of regional cooperation (Wang *et al*., 2016).

Clear division of functions among regions

It is important to speed up the construction of urban agglomeration at the nodes of the Central Plains, and link Zhengzhou with the surrounding cities in all aspects. Meanwhile, a good job should be done to accelerate the unified cooperative relations among the cities in various blocks, and promote the exchange relations mainly through government exchanges and exchanges between colleges and universities and so on. In addition, efforts should be made to carry out multi-directional, multi-level, multi-angle innovation exchange discussion, in order to realize the reasonable complementary and sharing of resources in node cities. By means of macro-control, the relevant policies of regional development should be formulated, and the functions of each region should be

rationally planned and distributed, and the roles of each city should be coordinated. We should promote the rapid construction of the region and improve the comprehensive competitiveness to realize the whole upgrading of regional modularization. High-level talent circulation and training shall be established which take Zhengzhou as the central node city and Xi'an as the cooperative node city. According to the functional requirements of each affiliated region, efforts should be made to introduce corresponding talents, and activate the regional market to promote the development of various towns.

Strengthen links among cities

We should follow the pace of the Belt and Road to trade with cities, and strengthen exchanges between cities along the route. Meanwhile, it is crucial to fully analyze and understand the advantages as well as disadvantages of each city, and timely feedback relevant information. A good job should be done to create a link platform for each city along "the Belt and Road". Through the platform, we can directly carry out the city docking, carry forward the role of Henan central city, and make full use of its superior geographical position to build the link platform. What we all do is to prepare for "bring in" and "go out". Through the railway transportation, which has strong advantages in the region, we can reduce the transportation cost and develop the regional characteristic industries, such as machinery manufacturing, electrolytic aluminum and other equipment manufacturing industries, adopting the principle of "go out". At the same time the government encourages the relevant enterprises to make overseas investment. In this region, the government has formulated relevant policies and regulations to ensure that the products of "bring in" and "go out" are of high quality, high efficiency, high level and high assurance. Efforts are made to fully develop the local characteristics by thorough research and innovative design to truly achieve Chinese-made.

CONCLUSION

In the new urban creation mode, we should avoid blindly turning over all things for innovation, but also keep our own characteristics. Undoubtedly, we cannot blindly follow, and lose the city's main consciousness. Just like the planting of *Artemisia argyi*, a small amount of planting has its own value. When all cities, counties, and villages follow the planting process, the product will soon reach saturation in the market. The market operation mode will change very quickly, so the government has a duty to evaluate and forecast it. The development and training of talents is very inevitable, especially in the current situation where the talent competition is very fierce as

talent is the basis for the development of an industry. However, we should give play to the principle of "fewer but better", so that the industry can specialize in certain fields which are also an invisible feature. "The Belt and Road" is not only an opportunity but also a challenge, as well as an important turning point and promotion to urban industry. The government also actively guides various industries and firmly grasps to control risks and opportunities reasonably and reduces losses. Node and regional cities should follow the basic principles of "complementary advantages, resource sharing, mutual benefit and symbiosis", which aims to work together to promote regional industrial cooperation in the Central Plains. It is crucial to give full play to the internal and external advantages of this region, comprehensively expand the hinterland of the Central Plains, and promote the adjustment and upgrading of the regional industrial structure, forming a good market atmosphere.

ACKNOWLEDGEMENTS

REFERENCES

Cui C (2015). The Research of the Rapid Development of Zhengzhou into the "One Belt and One Road" Under the New Normal [J]. J. Henan Univers. Anim. Husb. Econ. (4):51-54.

Cui C, Cui Y (2016). The basic situation and Policy Recommendations of Henan docking "the Belt and Road" Under the New Normal J. China Dev.16(1):50-55.

Fang C, Zhang X (2003). The Development Direction and Industrial Division of the Node Cities in the New Economic Belt of West Longhai [J]. Geography Stud. 22(4):455-464.

Qiu S, Li S, Wang X (2017). Spatial Conformity of Central Henan Urban Agglomeration and Development of Adjacent Cities of Zhengzhou, Kaifeng and Xuchang. J. Areal Res. Dev.

Wang S, Qu C, Gu X (2016). Analysis on spatial network structure's dynamic evolution of urban agglomerations in the middle yangtze river basin[J]. Resources & Environment in the Yangtze Basin.

Zhang M, Li R (2017). A study on the faculty mobility in institutions of higher education from the perspective of human capital theory[J]. J. Higher Educ. Manage. 11(5):1-6.