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The Research of Impact of Returning Cultivated Land to Forests in Poverty Areas around Beijing – Tianjin on Local Economy—A Case of Shunping County in Hebei Province, China

ZHAO Li*, ZHANG Peng-tao

Institute of Rural and Urban Construction, Agricultural University of Hebei, Baoding 071001, China

Abstract Taking Shunping County of Hebei Province as an example, according to the relevant survey data in the year 2008 after returning cultivated land and data in the year 2001 before returning cultivated land, the thesis analyzes the impact of implementation of project of returning cultivated land to forests on local land use structure, three industrial added value and farmers' per capita income. The results show that returning cultivated land has played a certain positive role on the local economic development and the improvement of people's life level. However, there are also some shortcomings: although farmers' income is increasing with low growth rate, a large portion of farmers still have not shaken off poverty; the farmers depends on subsidies greatly and the compensation mechanism of returning cultivated land is not considered well. China should further perfect the ecological compensation plan, and build rational ecological compensation mechanism in order to make the areas of returning cultivated land have self-blood-producing function; Shunping County should make full use of the location advantage in areas around Beijing – Tianjin, develop deep processing based on fruit trees industry, strengthen farmers' skill training, and increase input in the agricultural infrastructure construction to propel the sustainable development of agriculture.

Key words Areas around Beijing – Tianjin, Economic poverty, Returning cultivated to forests, Shunping County, China

The benefit of returning cultivated land to forests is the improvement of environment. However, we should focus on the impact of returning cultivated land to forests on local economy to activate people and make the project implement smoothly. According to the impact of returning cultivated land to forests on economy, the domestic scholars conducted researches from different aspects. Zha Xiaochun analyzed the impact of returning cultivated land to forests on rural economic structure in Tongchuan City^[1]; by surveying 1 619 rural households, Li Weizhong conducted comprehensive research on the impact of returning cultivated land to forests on farmers' income, farmers' behavior pattern and industrial structure^[2]; Zhang Weiping conducted correlated analysis of the compensation policy of returning cultivated land to forests and farmers' response^[3]; Shenqiang analyzed the driving force factors of returning cultivated land to forests on farmers' income, rural economy and agricultural economy^[4–5]; Meng Qingxiang analyzed the socio-economic benefit of project of returning cultivated land to forests in the north of shaanxi^[6]; Yu Jin'na calculated the efficiency of agricultural production of 196 rural households around the period of returning cultivated land to forests in Wuqi County by using DEA model, and analyzed the impact of returning cultivated land to forests on farmers' productivity^[7]. But it lacks researches of the economic impact arising from returning cultivated land to forests in the areas around Beijing – Tianjin. By surveying the economy and the situation of returning cultivated land to forests of Shunping County in Hebei Province, and col-

lecting relevant data, we conducted research on the impact of the project of returning cultivated land to forests in the areas around Beijing – Tianjin on local economy.

1 The overview of the study area

1.1 Natural condition Shunping County, located in 114°50' – 115°20' E, 38°45' – 39°09' N, the mid west of Hebei Province, and the east of Mount Taihang, is subordinate to Baoding City, Hebei Province. The total area of Shunping County is 708 km². It has 26 666.67 hm² cultivated land, 10 towns, 237 villages, and 0.3 million population. The average altitude of the county is between 50 and 1 006.7 m. It is the low mountainous area with topography of low mountain, hill and plain listing from the northwest to southeast. The county with good geographic location is important transportation center in the west of Baoding City. Its fruit tree industry develops rapidly, and it is named by national agricultural ministry and forestry administration as apple town of China, and peach town of China.

1.2 The overview of returning cultivated land to forests Shunping County implemented the project of returning cultivated land to forests in the year 2002. At the end of 2008, the area of returning cultivated land to forests in the aggregate is 11 133.33 hm² including 8 866.67 hm² afforested area with survival rate more than 90 percent. The farmers' income before returning cultivated land to forests mainly comes from growing grains and cash crops, breeding livestock and working in the city. The subsidy after returning cultivated land to forests accounts for 30 percent of their income. In addition, when they get the subsidy, the economic forest they grow has produced certain profit, so the income of most rural households of returning cultivated land can keep its former level or increase, but the income of

several rural households decreases relatively due to lack of labor forces or the ineffective management of economic forestry. Along with the implementation of program, the ecological benefit also gradually looms. By the construction of returning cultivated land to forests project since 2002, the forestry coverage rate increases by 2 percent. The phenomenon of water and soil erosion has been alleviated effectively, and the area of water and soil erosion has decreased by 15 km². The soil erosion decreased from 320 t/(a · km²) to 120 t/(a · km²). In the program area, the vegetation coverage rate increased by 4 percent, which has improved production conditions downstream and has reduced natural disasters.

2 The impact of returning cultivated land to forests on local economy

2.1 The impact on the land use structure

By the analysis of land use change from 2001 to 2008 in Shunping County (Fig. 1), the area of cultivated land in the period of returning cultivated land to forests decreased by 6 000 hm² and 2 266.67 hm² was used to return cultivated land to forests. Meanwhile, according to the statistical data of agricultural bureau in Shunping County, there is increase of the total grain output and per capita grain output in this period, indicating that the agricultural production in Shunping County developed from extensive pattern to intensive and high efficiency pattern, and returning cultivated land did not exert great pressure on the local grain output. In the meanwhile, the farmers adjusted the structure of crops, increased the proportion of cash crops, and spared no efforts to develop characteristic agriculture. The area of green house vegetables increased from 665 hm² in the year 2001 to 1 596 hm² in the year 2008 and the number of personnel increased from 6 000 to 18 000 in the year 2008. In the field of returning cultivated land to forests, 1 843.13 hm² was as ecological forestry which were mainly poplar and pine, and 423.53 hm² was as economic forestry which were mainly apricot, persimmon and plum. Because influenced by the factors of climate, soil and water resources, the fruit quality in Shunping County enjoys a good reputation in the region. The county seized favorable opportunity of returning cultivated land to forests, and developed advantageous industry to increase the area of garden plot prominently. The garden plot in Shunping County is mainly orchard. The area of garden plot increased by 4 327 hm² in the period and it rose to 9 873.35 hm² at the end of the year 2008, accounting for 28.26 percent of the total county area, which indicates that the fruit tree industry plays an important role in developing the economy of Shunping County.

The area of forestry increased to 1 014.41 hm². The project of returning cultivated land to forests made the forest coverage rate increase prominently, and alleviated effectively the phenomenon of water and soil erosion. There is increase of the area of rural residential area, transportation use land and water conservancy facilities, indicating that farmers' life quality is increasing and the local area increases the investment on agriculture infrastructure. The new village construction develops rapidly.

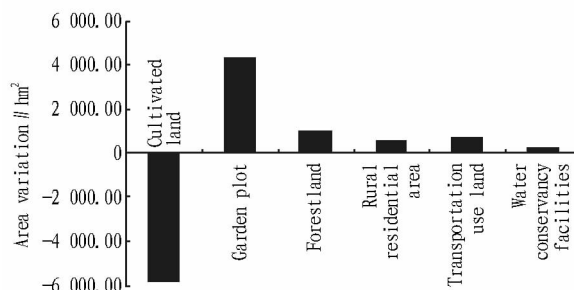


Fig. 1 The land utilization changes in Shunping County from 2001 to 2008

2.2 The impact on the added value of three industries

The direct impact of returning cultivated land to forests is the decrease of cultivated area and increase of forestry area. The forest types of returning cultivated land to forests are economic forestry and ecological forestry. Because from the growing of economic forestry to harvest will take 3 to 5 years, so in the previous years of returning cultivated land to forests, the primary industry value increased slowly. Along with the development of forest industry, the primary industry value increased quickly, and rose to 85.646 million yuan in the year 2008; in comparison with this, the added value of the secondary and tertiary industry increased relatively rapidly, and increased at the growth rate of 18.36% annually from 2001 to 2008 (Fig. 2). The annual increase of added value of the secondary and tertiary industry arose from the contribution of rural labor forces transfer to some extent. The government of Shunping County develops the fruit tree industry vigorously, propels the development of the tertiary industry, attracts tourists to go into orchard for plucking, builds a large folklore park, and makes deep processing of the fruits. The products are popular with people.

2.3 The impact on the farmers' per capita net income

The farmers' per capita net income increased from 2 014 yuan in the year 2001 to 2 729 yuan in the year 2008 (Fig. 3). There is a slight decrease of farmers' per capita net income in the year 2006, while there is increase in the rest years with the average growth rate of 4.53 percent. According to survey, on one hand, the increase of farmers' per capita net income comes from the direct subsidy of government due to the policy of returning cultivated land to forests; on the other hand, the income structure changed around the period of returning cultivated land to forests. After returning cultivated land to forests, the income sources tended to be complex, and the number of farmers who did work for others increased prominently. The employment ratio in the secondary and tertiary industry increased greatly, which was beneficial to propelling the agricultural industrialization construction, easing farmers'burden fundamentally, developing rural economy, quickening the pace of urbanization, and realizing the balanced development between the city and village^[8]. Meanwhile, although the farmers' per capita net income is increasing year by year in this region, there is gap in comparison with the farmers' per capita net income of 4 761 yuan in the year 2008 in China.

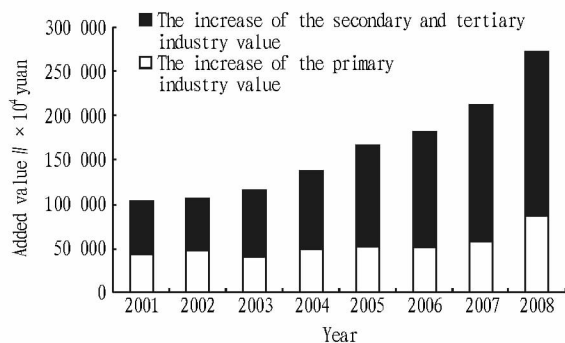


Fig. 2 Changes in the three value-added products in Shunping County from 2001 to 2008

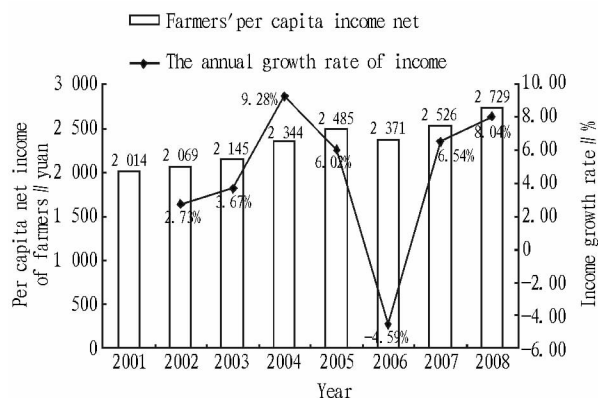


Fig. 3 Changes in per capita net income of farmers in Shunping County from 2001 to 2008

3 Conclusion and suggestion

Implementation of returning the cultivated land to forests project has improved the ecological environment of Shunping County, and also has played a positive role on the local economic development. Farmers who return their land to forests can directly obtain grain subsidy and cash subsidy accordingly, which can motivate farmers on returning the cultivated land to forests to a certain extent. Meanwhile, drawing by the improvement of ecological environment, depending on the local natural advantage, developing the tourism, the fruit tree industry and service industry positively, becomes the new economic growth point, which brings a new opportunity for the local economic development to a certain degree. But according to survey, we also find that some problems and defects continue to exist in the process of returning cultivated land to forests. For example, most farmers in this region still do not get rid of poverty. As against average national level and level of the areas of Beijing and Tianjin, their income increases, but the growth rate of farmers' income is relatively small; moreover, the land is the main source of income for the farmers who depend on the subsidy greatly. However, the compensation for returning land is a short-term policy (five years period of compensation for economic forest, eight years for ecological forest according to national stipulation). As regards returning cultivated land to forests, the State Council issued a new notice that *The Notice of State Council's Policy on Improvement of Returning Cultivated*

Land to Forests in the year 2007. It continues to offer farmers appropriate subsidy but the sum of compensation is relatively small. The factors of policies and increasing grain price make the farmland value and agricultural benefit tend to rise, so under this kind of policy and market environment, it will certainly impact farmers and herdsmen's enthusiasm of building and protecting environment, if the subsidy standard can't be raised^[9]. Meanwhile, the returning cultivated land compensation do not include the deserved compensation stemming from the farmers of returning cultivated land to forests for the re-employment of surplus labor forces to realize technical guidance and skill training^[10].

In order to consolidate the achievement of returning cultivated land to forests, and solve the life difficulty as well as the long-term livelihood problem of farmers of returning cultivated land, on one hand, China should further perfect the ecological compensation programs to establish a reasonable ecological compensation mechanism, promote the smooth development of returning cultivated land to forests and adjust industrial structure in the regions of returning cultivated land, so as to improve the ecological environment and promote local economic development. On the other hand, as regards the ecological project of returning cultivated land in the regions around Beijing and Tianjin, based on the status quo of poverty in most of the areas around Beijing and Tianjin, the policy support in the region should be reinforced to alleviate poverty in poverty-stricken areas as soon as possible so as to make poverty-stricken areas have self-blood-made function. In addition, Shunping County should make full use of regional advantage of areas around Beijing and Tianjin, develop characteristic advantageous industries, conduct deep processing on the basis of the fruit tree industry, strengthen the skill training for farmers, provide a platform for farmers to realize re-employment, and increase investment in agricultural infrastructure to promote sustainable development of agriculture.

References

- [1] ZHA XC, LAI ZL. Influence of returning cultivated land to forestland and grassland on rural economic structure in Tongchuan City, Shaanxi Province [J]. *Journal of Arid Land Resources and Environment*, 2010, 24(2):38–43. (in Chinese).
- [2] LI WZ, WU FY, WU ZK, *et al.* Impact of the conversion of cropland to forest project on the economy of the household of farmers—a case study of Wuqi County, Shanxi Province [J]. *Journal of Northwest Forestry University*, 2007, 22(6):161–164. (in Chinese).
- [3] ZHANG WP. Associated analysis of peasant household responding to the paying policy of returning cropland to woodland—taking the northwest of Hebei Province as an example [J]. *China Population Resources and Environment*, 2006, 16(6):66–68. (in Chinese).
- [4] SHEN Q, JIANG ZD, WANG JJ. Analysis on driving factors of returning farmland to forest on development of rural economy in Wuqi County [J]. *Research of Soil and Water Conservation*, 2009, 16(4):212–215. (in Chinese).
- [5] YANG XP. Driven analysis of reforestation project to the agro-economy in Shaanxi Province [J]. *Research of Soil and Water Conservation*, 2007, 14(4):230–232. (in Chinese).
- [6] MENG QX, WU B, HE PF, *et al.* Socio-economic benefits of returning farmland to forest project in Northern Shaanxi Province—taking Zhidan County and Zizhou County as examples [J]. *Bulletin of Soil and Water Conservation*, 2009, 29(4):159–163, 173. (in Chinese).

cing channel. Firstly, we can subsidize the agricultural recycle economy directly to bridge the gap of development capital; secondly, we can establish perfect financing channel to solve the problem of capital shortage. For example, we can finance in the form of fund, or directly absorb folk capital, or promote rural financial system reform vigorously, expand the scale of rural soft loan and intensify the financial investment in agriculture; thirdly, by means of the combination of agriculture and other introduced industries, for example, developing ecological tourism and use the tourism profit to protect ecological environment, we can promote the development of agricultural recycle economy on a certain basis and level; fourthly, we can actively encourage rural collective and farmers to invest. The investment has a irreplaceable role in developing agricultural recycle economy, so we should give full play to the enthusiasm and initiative of rural collective and farmers so as to exert their role in the extreme.

3.4 Intensify the technological support for agricultural recycle economy The agricultural technological innovation can guarantee the agricultural development and promote agricultural recycle economic development. Firstly, we should make full use of various kinds of agricultural resources of science and research, intensify the cooperation with science and research institution, colleges and leading enterprises and elevate the contribution ability of agricultural technology; secondly, we should develop biological project technology, cultivate the new varieties of plants and animals with high yielding, high quality and antidisease and antipest, and research biological agricultural pesticide and biological manure; thirdly, we should develop high yielding and high efficiency three-dimensional growing technology, symbiotic reciprocal breeding technology, fertilizing technology, rural household methane technology and the technology of rural energy development and recycling use; fourthly, we should reinforce the research on high technology such as the impact of genetically modified technology and information technology on agricultural ecological system, in order to form the technological support system beneficial to sustainable development.

3.5 Perfect the socialized service system of agricultural recycle economy We should establish and perfect the socialized service system of agricultural recycle economy, especially establish the service network structure of agricultural recycle economy in the every chain of production. On one hand, the government should reinforce the degree of working, and transform the socialized service system of agricultural recycle economy into the unified system of county-town-village-farmer according to the need of agricultural recycle economic develop-

ment, in order to make the agricultural recycle economy have complete planning, industrial choosing guidance and the analysis and prediction service of industrial result before production, and decrease the blindness of investment. On the other hand, we should establish and perfect the inspection, quarantine and certification institutions in the process of developing agricultural recycle economy, so as to form the monitoring and service system from top to bottom. We should also conduct comprehensive monitoring on agricultural environment, prohibit the production, sales and use of high-persistent pesticide, and establish the admittance system of agricultural products.

The agricultural recycle economy is the necessary strategic choice for realization of agricultural sustainable development, but there are many difficulties in some agricultural fields with relatively weak economy to develop recycle economy, so in the process of developing agricultural recycle economy, we should give full play to the guiding role of government, establish good environment beneficial to agricultural recycle economic development in order to make the agricultural recycle economy develop steadily.

References

- [1] GRANSTEDT A. Increasing the efficiency of plant nutrient recycling within the agricultural system as a way of reducing the load to the environment—experience from Sweden and Finland[J]. *Agriculture Ecosystems and Environment*, 2000, 80: 169–185.
- [2] WESTERMAN PW, BICUDO JR. Management considerations for organic waste use in agriculture[J]. *Bioresource Technology*, 2005, 96(2): 215–221.
- [3] SKJELHAUGEN OJ. A farmer-operated system for recycling organic wastes[J]. *Journal of Agricultural Engineering Research*, 1999, 73(4): 373–382.
- [4] Statistics Bureau of Zhangye City. *Zhangye Statistical yearbook 1990–2009*[M]. Beijing: China Statistics Press, 1990–2009. (in Chinese).
- [5] YAO WX. Study on developing circular economy around the Bosten Lake[M]. Urumqi: Xinjiang University Press, 2005: 11–14. (in Chinese).
- [6] LIU ZW. Study on ecological economics and sustainable development of agriculture in Western Development[M]. Beijing: China Environmental Science Press, 2005: 26–38, 115–122, 186–190, 195–217. (in Chinese).
- [7] LI X, GUO N, SONG FR. Relationship between the cultivated land change and the population and economic development in Shandong Province since 1990[J]. *Asian Agricultural Research*, 2009, 1(1): 14–17, 33.
- [8] YAO J. Social benefit evaluation on regional land consolidation based on social security function of land—A case of Nanjing City[J]. *Asian Agricultural Research*, 2009, 1(2): 37–41.
- [9] ZHAO Y. Studies on the support and compensation mechanism of poverty belt around Beijing and Tianjin [J]. *Inquiry into Economic Issues*, 2008(3):179–182. (in Chinese).
- [10] QIN YH, KANG MY. On the improvement of ecological compensation system for turning cultivated land back into forests and grasslands—a case study in the Loess Plateau, Western China [J]. *China Population Resources and Environment*, 2006, 16(4):28–32. (in Chinese).

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- [7] YU JN, YAO SB. The impact of the SLCP on the household's production efficiency—take Wuqi County as a case [J]. *Issues of Forestry Economics*, 2009, 29(5):434–437. (in Chinese).
- [8] ZHANG XW. The influence and countermeasures of returning cultivated land to forest on agriculture industrialization [J]. *Journal of Northwest University: Natural Science Edition*, 2006, 36(1):86–89. (in Chinese).