

# On land transfer, farmers' income and targeted Poverty Alleviation -- Based on the analysis of DID model

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**ABSTRACT.** Based on the data of land transfer and income in Huai'an City, Jiangsu Province, China, this paper uses the DID model to analyze the income of farmers participating in land transfer and not participating in land transfer in Huai'an City. Specifically study the relationship between land transfer and farmers' income, and explore the relationship between land transfer and targeted poverty alleviation. The results showed that: compared with the non participating farmers, the per capita net income, per capita wage income and per capita rental income of the participating farmers increased significantly; the per capita planting income and per capita animal husbandry income decreased significantly. And after the land transfer, farmers' wage income and rental income are the main sources of farmers' net income growth.

**KEYWORDS:** Land transfer; Farmers' income; DID model; Age

## 1. Introduction

### 1.1. Research background

Land transfer is the transfer of the right to use the land of farmers. It is the transfer of the right to use the land to other farmers or economic organizations, that is, to retain the right to contract and transfer the right to use the land. At present, there are two main situations in the land transfer. The first one is to give up the right to use the land due to the lack of physical strength to engage in agricultural work; the other is to transfer the right to use the land due to better development opportunities.

Since the middle and late 1980s, the land transfer has developed for more than 30 years, and the rough route has gradually become flat. By the end of 1984, the number of farmers participating in land transfer was 2.7%, but the proportion of farmland transferred out was only 0.7%; in 1992, there are 4.733 million contracted farmers participating in land transfer nationwide, accounting for only 2.3% of the total; in 1995, the proportion reached 4.09%.

Although it can be seen from the data that the area of land transfer and the number of farmers participating in the land transfer are increasing, there are 150 million farmers in China, with a large number of farmers, insufficient publicity of land transfer, inadequate relevant laws and regulations, market system and social security system of farmers transferring out of the land, and unbalanced rural development in various regions of China. Some farmers still doubt whether the land transfer can bring higher income, so the process of land transfer is still very slow and incomplete.

**1.2. Purpose of the study**

As a production factor, land is difficult to enter the market, but in recent years, with the reform of land policy, land circulation has gone through the process from "Prohibition" to "opening" and then to "support". It can be seen that the status of land circulation has been recognized, and many problems have been solved in this development process.

The most important problem is the imbalance of the scale of land transfer among regions. The data of 2007 shows that the land transfer rates of East, middle and West China are 5.88%, 4.77% and 5.33% respectively. The eastern part is a more developed coastal area, in contrast, the development of the central part is relatively slow. In addition to the unbalanced development among regions, there are also great differences within the same province. Taking Jiangsu Province as an example, as of 2008, the land transfer area of Nanjing is 50300 Hm2, accounting for 30% of the total contracted area; the land transfer area of Suzhou is 6.67hm2, accounting for 41.8%; the data of two cities with similar development level are quite different, but the gap between other regions is even greater.

Figure 1 shows the trend of land transfer rate in China from 1996 to 2017.

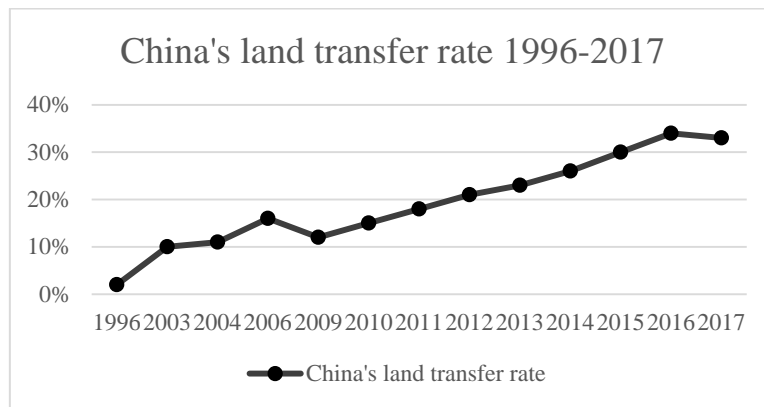


Figure 1. land transfer rate in China 1996-2017

Data source: China report network

From the broken line chart of China's land transfer rate in 1996-2017, it can be seen that the overall process of China's land transfer is healthy and stable, but there is still a problem behind the steady growth. The main body of land transfer is farmers, but the current land transfer is lack of farmers' recognition and support. Many farmers' understanding of land transfer is not in place. At present, with the continuous advancement of China's urbanization process and the increasing intensity of land acquisition and demolition, farmers see the greater potential value and economic benefits of land, which affects the enthusiasm and initiative of farmers to participate in rural land transfer. Moreover, the local cadres in some areas do not pay enough attention to the land transfer and guide the farmers, which makes the land transfer in some areas belong to the spontaneous transfer between farmers, affects the overall development of the land transfer cause and hinders the rapid development of the rural economy.

In order to further activate the "sleeping resources", so that farmers can really accept and support the standardized development of land circulation. Based on the did model, this study analyzes the relationship between land transfer and farmers' income, so that farmers can actively participate in land transfer, promote economic development, and contribute to poverty alleviation and poverty alleviation.

## **2. Literature review**

China is a large agricultural country, agriculture is the foundation of our national economy, the development of agriculture is directly related to the income of farmers, so many Chinese scholars have studied it. Wen Tao (2005) and other scholars made an empirical study on the relationship between China's overall financial development and farmers' income growth. Xu Chongzheng (2005) studied the key factors of increasing farmers' income. Wang Chunchao (2004) studied theoretically the restricting factors of farmers' income growth. Zeng Chaoqun (2010) made an in-depth study on land circulation with the help of probit model.

Roy plostman, an American scholar, believes that the state should give farmers long-term and stable land use rights, so as to improve the enthusiasm of farmers and improve agricultural production efficiency and competitiveness. After studying economics and policy, Goldberger emphasized the importance of protecting land use value from external factors. Other related studies include Indian scholars Burgess and panda, whose research shows that rural finance in India has played a significant role in promoting farmers' income.

Many scholars have studied the influencing factors of increasing farmers' income from a large scale, but only a small part can pay attention to the principle of a certain influencing factor. This paper studies the relationship between land transfer and farmers' income in Huai'an City, Jiangsu Province.

### 3. Model construction

#### 3.1. Model selection and construction

When choosing the model, we should consider the did model of econometric method, which is mostly used for quantitative evaluation of the effect of public policy or project implementation. This paper chooses this model to evaluate the impact of land transfer on Farmers' income, which can objectively and accurately evaluate the effect and significance of land transfer.

The basic idea of this method is to divide the survey sample into two groups, one is to carry out land transfer, which is called "action group", the other is not to carry out land transfer, which is called "control group". According to the relevant information of the action group and the control group before and after the land transfer, we can calculate the change amount (income growth) of an indicator (such as income) before and after the land transfer in the action group, and calculate the change amount of the same indicator in the control group before and after the land transfer. Then calculate the difference between the two changes (double difference estimate).

When analyzing the income gap between the two, we divide them into two categories according to whether the villages and towns implement the land transfer. If the villages I have implemented the land transfer, then define  $D_i = 1$ , otherwise  $D_i = 0$ . Considering that the income of villages and towns before the implementation of land transfer will affect the results, the observation period is two: 1. Before the implementation of land transfer, 2. After the implementation of land transfer. The first difference is made, and the income of the two types of villages and towns is divided into two periods:

$$\Delta Y_i = \frac{1}{N} \sum (Y_{i1} - Y_{i0})$$

Get the growth trend of each village's income Then the second difference is used to get the difference of income growth rate of two kinds of villages and towns before and after the implementation of land transfer:

$$\Delta = E(\Delta Y_i | D_i = 1) - E(\Delta Y_i | D_i = 0)$$

The model can also be expressed directly by formula.  $D_i$  represents whether land transfer is implemented in villages and towns. If it is implemented,  $D_i = 1$ , otherwise it is 0. Treated is a virtual variable, which represents the period of data source. If the data source is after the land transfer, it will be  $T=1$ , otherwise it will be 0. As shown in the following table:

Treated	$D_i=0$	$D_i=1$
$T=0$	0	0
$T=1$	0	1

In the first phase, only villages and towns with  $D_i=1$  have implemented land transfer, so  $Treated = D_i \times T$  and the following formula can be obtained:

$$Y_{it} = \chi + \alpha D_i + \beta T + \gamma(D_i \times T) + \varepsilon$$

Where  $i$  represents the village and town,  $t$  represents the period,  $Y_{it}$  is the per capita income of the village and town  $i$  in  $t$  period, and  $\varepsilon$  is the disturbance term. For the control group villages and towns,  $D_i = 0$ , that is to say  $Y_{it} = \chi + \beta T + \varepsilon$ , therefore the income of the control group villages and towns before and after the land transfer is:

$$Y_{0t} = \begin{cases} \chi, & \text{When } T = 0 \\ \chi + \beta, & \text{When } T = 1 \end{cases}$$

Then the average income of the control group before and after the land transfer is as follows:

$$\Delta Y_{0t} = (\chi + \beta) - \chi = \beta$$

For treatment group villages and towns,  $D_i = 1$ , namely:  $Y_{it} = \chi + \alpha + \beta T + \gamma T + \varepsilon$ . Therefore, the income of treatment group villages and towns before and after land transfer is:

$$Y_{1t} = \begin{cases} \chi + \alpha, & \text{When } T = 0 \\ \chi + \alpha + \beta + \gamma, & \text{When } T = 1 \end{cases}$$

Then the average income change of the villages and towns before and after the land transfer is as follows:

$$\Delta Y_{1t} = (\chi + \alpha + \beta + \gamma) - (\chi + \alpha) = \beta + \gamma$$

Therefore, the net impact of land transfer on Farmers' income is as follows:

$$\Delta Y = (\beta + \gamma) - \beta = \gamma$$

It can be seen that the  $\gamma$  is the treatment effect we want to estimate, that is, the double difference estimate, which represents the effect of land transfer. After substituting the specific value, we can know whether the land circulation is positively or negatively related to the growth of farmers' income.

### 3.2. Variable selection

This paper studies the relationship between land transfer and farmers' income. It is easier to judge the effect of land transfer from the change of farmers' income. Therefore, the change of farmers' income is taken as a dependent variable. There are five main sources of farmers' income: planting income, breeding income, migrant income (wage income), transfer income (state subsidies for farmland, grain and

coal), and other income. If we evaluate the income of farmers, we need to analyze the five aspects of income.

The main factors that affect farmers' income are policy factors, system factors and farmers' own factors. The first two are uncontrollable and unpredictable, so the most important factor affecting farmers' income is farmers' own factors. Therefore, the number of farmers' initial assets and years of education are selected as independent variables. The statistical description of the main variables is shown in Table 1.

*Table 1 statistical description of main variables*

Variable	Sample size	Mean value	Maximum	Minimum	Standard deviation
Per-capita net income	268	9958.8	12011	8433	4689
Per capita wage income	268	5288	6719	0	4235
Per capita income of planting industry	268	3026	3969	0	2301
Per capita animal husbandry income	268	462.2	606	0	2286
Per capita transfer income	268	1064.8	2189	0	394
Per capita rental income	268	171.4	211	0	657
Initial assets	268	32091.3	67200	0	5832
Age	268	46.2	71	25	9.3
Years of Education	268	7.2	12	3	2.13

### 3.3. Data sources

The land transfer of Huai'an starts from 2012, so the data is from 2010 to 2014. In 2011, Huai'an City has issued (implementation plan for efficient facility agricultural insurance), which is the first year of implementation and closely related to farmers' income, so it will have a certain impact on farmers' choice. 2012 is the formal implementation time of land transfer. Due to lack of understanding, farmers' income is unstable, and the data is not convincing. Therefore, the data of 2010, 2013 and 2014 are selected. In order to make the data comparative, the data of 2010 and 2014 are finally selected.

The survey obtained data in the form of symposiums and yearbooks. A total of 150 households were surveyed. 134 households obtained effective data, 79 of which participated in land transfer and 55 did not. 268 groups of data were obtained in combination with 2010 and 2014.

#### 4. Analysis of model results

##### 4.1. Specific data analysis

*Table 2 Income difference of farmers before and after land transfer*

Net income per capita (yuan)	Participation circulation	in	Not involved in circulation	Income disparity
Before circulation: 2010	4317		5262	-945
After circulation: 2014	8419		7015	1404
Income disparity	4102		1753	2349
Per capita wage income (yuan)	Participation circulation	in	Not involved in circulation	Income disparity
Before circulation: 2010	1016		1684	-668
After circulation: 2014	2835		2572	263
Income disparity	1819		888	931
Per capita income of planting industry (yuan)	Participation circulation	in	Not involved in circulation	Income disparity
Before circulation: 2010	2677		2864	-187
After circulation: 2014	1102		3729	-2627
Income disparity	-1575		865	-2440
Per capita animal husbandry income (yuan)	Participation circulation	in	Not involved in circulation	Income disparity
Before circulation: 2010	1021		1365	-344
After circulation: 2014	685		1673	-988
Income disparity	-336		308	-644
Per capita transfer income (yuan)	Participation circulation	in	Not involved in circulation	Income disparity
Before circulation: 2010	187		113	74
After circulation: 2014	1842		1533	309
Income disparity	1655		1420	235
Per capita rental income (yuan)	Participation circulation	in	Not involved in circulation	Income disparity
Before circulation: 2010	6		26	-20
After circulation: 2014	3587		175	3412
Income disparity	3581		149	3432

Different from other incomes above, before land transfer, the per capita income of farmers participating in land transfer is lower than that of non participating farmers, with a difference of - 187 yuan; after land transfer, the per capita income of farmers participating in land transfer is 2627 yuan lower than that of non participating farmers, with a difference of - 2440 yuan compared with that before land transfer, which reflects the per capita income of non participating farmers after land transfer. However, the per capita net income of the participating farmers decreased significantly. Compared with each other, the per capita net income of the participating farmers decreased by 1575 yuan. In the same way, after the land transfer, the per capita net income of animal husbandry of the participating farmers is 988 yuan less than that of the non participating farmers. Compared with the

difference between the two before the land transfer, the net income is 644 yuan less.

Through the analysis of Table 2, it is found that after the land transfer, the per capita wage income, per capita transfer income and per capita rental income of farmers increase positively, while the per capita planting income and per capita animal husbandry income increase negatively. After comprehensive comparison of various incomes, the per capita net income increases positively.

Among the per capita net income of participating farmers, the proportion of planting, animal husbandry, wages, transfer and land lease in 2010 was 54%, 21%, 20%, 4% and 1% respectively, and adjusted to 11%, 7%, 28%, 18% and 36% by 2014. The income structure of participating farmers changed from planting and animal husbandry income per capita to wage per capita and rental land income per capita. The contribution rate of per capita wage and per capita rental land income to the growth of per capita net income of participating farmers is as high as 64%. It can be seen from the transformation of the income structure in the front that the long-term rent signed between farmers and farmers will continue to obtain relatively stable rent income. At the same time, more and more rural labor force will be freed from the dependence on land, engage in non-agricultural industries with wider space, accelerate the transfer of farmers to the second and third industries, and obtain higher income than engaged in agricultural production. At the same time, from land rent Jinzhong makes up for the opportunity cost of engaging in non-agricultural industry. However, before the land transfer, farmers not only have to face the natural disaster risk of agriculture and animal husbandry, but also the risk of agricultural and livestock products due to the fluctuation of market price. These farmers are unable to control and their income is not guaranteed.

Among the per capita net income of non participating farmers, the proportion of planting, migrant work, animal husbandry, transfer and land lease in 2010 was 47%, 27%, 23%, 2% and 1% respectively; by 2014, the proportion was adjusted to 38%, 27%, 17%, 16% and 2%. The proportion of per capita planting and animal husbandry income decreased significantly, while the proportion of transfer income increased. The transfer income of farmers mainly comes from the pension, the return and return of the non resident population, the subsidy of returning farmland to forest, and a series of agricultural subsidies. As the voluntary outflow of rural labor force can increase the wage income through migrant work, the increased income is likely to flow into their relatives' investment in agricultural production. With the gradual improvement of the state subsidy policy, the agricultural subsidies received by farmers are gradually increasing.



#### 4.2. Analysis of measurement results

Table 3 Basic model estimation results

Variable	Coefficient	Net income	Wage income	Planting income	Animal husbandry income	Transfer income	Rental income
$D_i$	$\alpha$	-945	-668	-187	-344	74	-20
T	$\beta$	4102***	1819**	-1575*	-336	1655***	3581
$D_i \times T$	$\gamma$	2349*	931***	-2440***	-644	235	3432***
C	$\chi$	4317***	1016***	2677***	1021***	187	6
F(3230)	---	21.61	18.21	20.49	1.32	60.12	69.18
Prob>F	---	0	0	0	0.2661	0	0
R <sup>2</sup>	---	0.2361	0.2062	0.2258	0.0184	0.4618	0.4959

(Note: \*, \*\*, \*\*\* are significant at the levels of 10%, 5% and 1%, respectively.)

From the regression results in Table 3, we can see that except the animal husbandry income model fails to pass the test, other factors affecting farmers' income have passed the significance test.

- The results of the model show that the land transfer has no significant impact on the per capita income of livestock. The reason is that some farmers grow crops for the development of animal husbandry. After the land transfer, the forage needs to be purchased, which indirectly leads to the increase of feeding costs. In addition, although some farmers have transferred their land in the project area, in order to expand the number of livestock breeding, they have rented land from outside the project area. After the land transfer, although the farmers have increased the income of planting, animal husbandry, and wage income, it is not enough to make up for the increased cost of animal husbandry, so as to reduce the total income.
- The results of other models show that: (1) the estimated value of did of net income, wage income and rental income is significant and positive, which shows that the net income, wage income and rental income of the farmers who participate in the land transfer have significant positive effects while controlling the time-varying effect and the difference effect, that is, compared with the control group, the net income and wage income of the treatment group before and after the land transfer are significantly positive. Income and rental income increased significantly. (2) The estimated did of the income of planting industry is significant and negative, which shows that the per capita net income of planting industry before and after land transfer decreased compared with the control group. This finding is basically consistent with the above did estimation results. (3) The time-varying effect number  $\beta$  of the transfer income is 1655, which is significant at the level of 1%, while the difference effect coefficient  $\alpha$  is 74, and the estimated value  $\gamma$  of did is 235, which has no significant effect on the transfer income. It shows that the transfer income increases with the change of time, which has little relationship with whether the farmers participate in the land transfer. At present, the transfer income of farmers mainly comes from the

government's subsidies to farmers. With the gradual improvement of the agricultural subsidy policy, the subsidies to farmers will gradually increase, which has little to do with whether to participate in the land transfer, which is also consistent with the reality.

*Table 4 Model estimation results of introduced control variables*

Variable	Net income	Wage income	Planting income	Transfer income	Rental income
DID Estimated value	1788**	2063***	-2312***	97	2111***
Average age (years)	-0.32	-31.72	11.36	2.87	23.08***
Years of Education (years)	319.92** *	312***	138***	7.43	-18.47
Average cultivated area (MU)	85.56***	-14.79	55.26***	3.22***	14.11***
C	-1054	-2663	-992	-46.72	187
F(8210)	22.21	10.37	32.3	27.43	35.31
Prob>F	0	0	0	0	0
R <sup>2</sup>	0.4658	0.2870	0.5582	0.5171	0.5802

The model estimation results after the introduction of control variables are shown in Table 4. Analysis of the model estimation results shows that the average age of farmers has a positive impact on the income of planting industry, transfer income and rental income, a negative impact on other types of income, a significant impact on rental income to a significant extent, but no significant impact on other types of income; the education years have a negative impact on rental income, but on other types of income. In addition, the average cultivated land area has no significant negative impact on wage income, and has significant positive impact on other income types.

In the control variable:

- Age has a significant impact on rental income, while other income has no significant impact. With the increase of farmers' age, their physical strength and health level gradually decreased, and they could not complete more physical work, and their income from wage and planting industry decreased. At the same time, they were more inclined to rent out land to obtain rent. In the transfer income, the direct subsidy for grain production is given according to the planting area of grain crops, and the purchase subsidy for agricultural machinery is given according to the large-scale pollution-free agricultural machinery purchased, regardless of the age of the farmers. Therefore, age has no significant influence on wage income, planting income, transfer income and per capita net income.
- The longer the years of education, the higher the ability of information access and mobility of farmers, the more inclined they are to go out to work, get non-agricultural income, and increase their wage income. On the other hand, the higher the number of years of education for the farmers who do not want to go out to work, the easier they will accept the advanced planting technology,

get more income from the planting industry, and the lower the probability of getting the income from land lease.

- On the one hand, farmers can get more income from planting and renting land, on the other hand, they can get more agricultural subsidies. Therefore, the average cultivated land area has a significant positive impact on other income types besides wage income.

## **5. The significance of land circulation**

Rural land is a kind of resource with commercial value, financial transaction, and the transfer of rural land ownership can fully realize the optimal allocation of rural land consumption market resources. In China's rural areas, farmland is the most critical property of the majority of farmers. In addition to the national conditions of China's large population, it is necessary to promote the cultivation of nearly 1.3 billion Chinese people in the forest land which is short of mu. On the basis of the household contract management responsibility system, China is required to open the market of rural land use rights and promote the rational transfer of rural land use rights. Therefore, this paper has important practical and economic interests.

### **5.1. Practical significance**

- Conducive to the transfer of rural labor force to the secondary and tertiary industries

At present, a very important problem is the surplus of rural labor force and the slow increase of farmers' income. How to effectively solve this problem is an urgent need for Party committees at all levels to consider. The circulation of land has reduced the number of people directly engaged in agricultural production, reversed the part-time industrialization of local farmers, lifted the constraints of agricultural land on these farmers, and promoted the transfer of rural population to non-agricultural industries. It not only solves the problem of employment in the urban industrial concentration area, but also promotes the urbanization and the progress of rural informatization to ensure the gradual increase of farmers' income.

- Avoid abandoning rural land

The transfer of rural labor force to non-agricultural industries and the low benefits brought by farming will lead to the risk of abandonment in many places. Therefore, by realizing land transfer, the left behind farmers can obtain a large area of land, that is, the land will be abandoned in succession, and a few people can develop and manage it by concentrated investment of capital and technology, which can not only prevent the land from abandoning, but also raise High efficiency of land production can also increase farmers' income.

- Speeding up the extension of agricultural technology and machinery

After the implementation of the land transfer system, the large contracted

households are eager to use new technology and obtain excellent varieties to improve production and efficiency. In this way, although the objects of implementing new technology and equipment, excellent varieties and new machinery in agricultural functional departments are fewer and the work is less difficult, the scale and total area of land management can increase several times, dozens or even more times. Then it can effectively improve the efficiency of agricultural labor and promote the steady development of agricultural modernization.

### **5.2. Economic significance**

- Enhance the strength of rural collective economy

In order to ensure the smooth operation of the supervision system, the rural collective economic organizations often share the cost to the farmers according to the number of contracted farmland. In order to avoid the tax they share, the farmers abandoned their farmland. After the gradual formation of the rural land transfer system, in order to thoroughly solve the key problem of tax arrears caused by abandonment, rural collective economic organizations actively promote the transfer of contracted land by abandoned farmers, promote the concentration of agricultural land to a part of the farmers, and realize the transfer of rural land and the implementation of tax burden. Such measures not only help to develop the comparative advantages of these people's talents, but also expand the scale of land management, produce the scale effect of modern agricultural production, reduce production costs and increase the overall benefits of agriculture. Therefore, the rural land flow can directly get the profits brought by the overall economy of rural land scale.

Not only the rural land users can get the investment income of rural land scale management, but also the indirect investment income of rural land scale management. One is to assume that the pricing system of rural land transfer is proper, the better the economic benefit of scale operation of rural land transfer is, the higher the rental income of rural land transfer can be obtained by the inflow of rural land. Second, some farmers can obtain wage income through being employed by land scale operators, and indirectly benefit from land circulation. This situation makes it helpful to increase collective income while increasing farmers' income. No matter whether it is entrusted subcontracting or reverse leasing, the village collective economic organization has further improved the commercial value of land use and increased the business income and personal income by means of technical means such as farmland concentration, farmland consolidation, investment attraction and so on.

- Promote the adjustment of agricultural structure and the development of agricultural scale management

Due to the differences in the scientific, technological and cultural quality, capital, technology and other aspects of farmers, it is impossible for all farmers to engage in farming and breeding operations in accordance with the unified plan. Only by

starting from the reality and actively guiding farmers to transfer the land use rights, can we implement the regional layout plan in the adjustment of agricultural structure, promote the concentration of land to large-scale professional farmers, and then promote the scale of agricultural operations, Improve the organization degree of industrialization and realize the high benefit of agriculture.

- Promote agricultural industrialization and large-scale production

In the past, it was mainly one household with decentralized management, production and commodities could not form scale management, and the competition was often at a disadvantage. Some skilled farmers asked for expansion of operation scale or projects, but they were short of rural land. However, some farmers engaged in non-agricultural industries were unable or unwilling to cultivate rural land. Only with the help of land circulation can it help to deal with and promote the optimal and reasonable allocation and combination of agricultural land, labor, financial funds, technical equipment, information content and other production factors, help to steadily develop moderate scale operation, promote the adjustment and optimization of the structure of agriculture and animal husbandry, strengthen the competitiveness of the consumption market of agricultural and sideline products, and then help to improve agricultural economic returns and help to increase the production of agriculture and animal husbandry and increase the income of farmers.

## **6. The current situation and problems of farmers' income under the background of land transfer.**

### **6.1. Current situation**

Different types of land circulation promote the land circulation, promote the scale of land management, and achieve the win-win of agricultural production and farmers' income. Land circulation has become a new way for farmers to increase their income and become rich. At present, the land transfer has a certain impact on the family operating income, property income, wage income and transfer income of farmers. The land transfer will increase part of the property income of farmers. At the same time, the land transfer will make a new allocation of urban and rural resources. After the land transfer, farmers do not need to stay in the countryside to cultivate land, and some farmers leave the countryside Villages go to cities and towns to find jobs, and wages increase. To some extent, the income from working is higher than the income from farming, so the land circulation increases the wage income of farmers. Land transfer also promotes the progress of science and technology in rural areas to a certain extent, so as to promote the development of rural economy. But at present, some farmers are conservative and unwilling to accept new things, and their income has not changed because of land circulation. At present, the impact of land transfer on Farmers' income is mainly reflected in the following aspects.

## **6.2. *The impact of rural land transfer on Farmers' income***

- The impact of rural land transfer on family operating income

Family operating income refers to the income obtained by farmers through family operation, that is, the income from trading agricultural products. Family operating income is the main way for farmers to get income after the household contract responsibility system. Compared with the 1990s, the proportion of farmers' household operating income in the farmers' income has decreased significantly. In recent years, with the marketization of agriculture and the transfer of rural labor force to the second and third industries, the growth rate of family operating income is slow.

There is a positive correlation between land transfer and family operating income. The transfer of land makes the development of agricultural land from decentralization to centralization, and the transfer of land from ordinary farmers to large farmers. Large farmers increase their grain output through standardized and collective planting, thus increasing their family operating income.

- The impact of rural land transfer on wage income

Wage income refers to the income that farmers get from selling labor through various forms. The wage income of farmers is the second largest source of income besides the family operating income. The wage income is stable, which has a great influence on the increase of farmers' income in recent years.

Land transfer mainly affects the wage income of farmers by transferring rural labor force. For the farmers who have transferred their land, they can participate in non-agricultural labor. If the income at this time is higher than that of the family operating income, the relatively stable wage income will greatly improve the income level of the farmers.

- The impact of rural land transfer on property income

Property income, also known as asset income, refers to the income generated by the participation of capital in social production and life activities. That is, the income obtained by the family's movable and immovable property. It includes interest, rent and patent income from the transfer of the right to use the property, dividend income and value-added income from the operation of the property, etc. Farmers' property income mainly comes from investment and property leasing. The transfer of land can increase the property income of farmers. The transfer of household contract right enables farmers to obtain the income of land transfer and certain compensation. The transfer of other types of land, such as homestead and rural collective construction land, can obtain the income by transferring the right to use. To improve the system of land circulation and make the land enter the market on the basis of confirming the right can increase the farmers' income to a certain extent.

- The impact of rural land transfer on transfer income

The transfer income of farmers refers to the goods, services, funds or asset ownership obtained by rural households and household members without paying any

counterpart, excluding the funds provided free of charge for the formation of fixed capital. Generally speaking, it refers to all incomes of farmers in the secondary distribution. As long as it is qualified for land transfer, farmers will get land transfer subsidies, increasing farmers' income, but the proportion of this type of income in farmers' income is not large.

### **6.3. Problems of farmers' income under the background of land transfer**

- The system, market and technical system matching with rural land circulation are not perfect

First of all, the institutional guarantee for farmers to increase their property income is not perfect. In the process of land transfer, farmers are the main body, and the state, enterprises and other economic organizations are the participants. It's hard to avoid problems when talking about prices with farmers, they will inevitably have problems. And farmers generally lack legal awareness and do not know how to use legal knowledge to protect their legitimate rights and interests. In addition, China's land transfer mechanism is still in an immature stage, the regulatory authorities are not in place, and relevant laws are not in place the laws and regulations are not perfect. In this process, the legitimate rights and interests of farmers are easy to be infringed, and farmers can not get sufficient property income.

Secondly, farmers lack a good market atmosphere to increase property income. Property income refers to the income generated by capital participating in social production and life activities. Property income often does not need management to obtain, but property into the market competition mechanism, in the allocation of resources. After the land enters the market, it will increase the value through the market competition mechanism and increase the property income of farmers. A good market atmosphere and market mechanism play an important role in increasing farmers' property income.

The last point is too much pressure on big farmers. First of all, the transfer of rural land in some areas is from ordinary farmers to large farmers, but in recent years, the growing cost of agricultural products is increasing, which puts great pressure on large farmers and affects their income. On the one hand, the expenditure on fertilizers, pesticides and improved varieties is relatively large; on the other hand, there are many uncertain factors in the process of planting agricultural products and entering the market of agricultural products. The income of large farmers is not guaranteed, which leads to the pressure of large farmers. Secondly, the planting technology of the grass-roots large-scale planting households is still at a low level. Although the large-scale planting households will transfer the land to their own hands for collective management, due to the low level of their own culture, they lack the strength to master the planting management technology that is conducive to improving production and saving costs, and seriously affect the income of the large-scale planting households.

There are great problems in the employment of farmers, which affect their income

The willingness of farmers to transfer their land decreased. There is also a certain relationship between the rate of rural land circulation and economic development. The premise of the rapid development of land transfer is that the development speed of the second and third industries in China is faster than that of the first industry, so the farmers who have transferred their land are engaged in the second and third industries. But when the economy is depressed and the speed of economic development slows down, many labor-intensive enterprises have difficulties in operation. In order to reduce the cost, they will lay off those positions with low technical content and large number of people. Most of the laid off employees are migrant workers after a large number of land has been transferred. Moreover, the labor market is in a downturn at this time, which will cause farmers to lose their jobs and affect their incomes the idea of returning to the village increased and the willingness of land transfer decreased.

In addition, the employment of farmers has great limitations. On the one hand, farmers' long-term cultivation has led to their lack of employment capacity, coupled with low cultural level, old and conservative thinking, and there are great limitations in the choice of employment positions, so they can only choose the secondary industry and the tertiary industry with low technology content. On the other hand, most of the farmers in rural areas of our country have long had the idea of small-scale farmers. They are used to the life of self-sufficiency and no competition in rural farming. When they work, they will lack enthusiasm and competitiveness, which has become the disadvantage of their employment.

After the land transfer, the demand for labor force in rural areas decreased. After enterprises or other economic organizations obtain the transferred land, they use collective management and mechanized production, which greatly improves the production efficiency. As a large number of labor force, the peasants who lost their land were replaced by machines, which made it difficult for them to get employment in the countryside and aggravated the employment contradiction.

## **7. Conclusion and Countermeasures**

After sorting out and processing the collected data, it can be observed that after the implementation of land transfer (Huai'an City, Jiangsu Province), farmers' income has increased significantly compared with that before the implementation of land transfer, whether it is the land transfer out party or the land transfer in party. Therefore, from the perspective of improving farmers' income, the effect and significance of land transfer is extraordinary.

At the same time, in order to better show the role of land transfer in promoting farmers' income, this study will also objectively provide corresponding solutions to some significant problems in the relationship between land transfer and farmers' income.



### ***7.1. Improve the land transfer market***

Improving the land circulation market can speed up the speed of land circulation to a certain extent. We should establish a certain number of experienced and large-scale land transfer centers and land transfer markets, complete the information docking between the supply and demand sides of the market, and give full play to the role of land transfer centers and land transfer markets. In addition, we should establish the corresponding market supervision mechanism and strengthen the supervision of the land circulation market and the land circulation procedure. Actively innovate and reform, constantly improve the market system in practice, strive for favorable conditions, promote orderly and regular circulation of agricultural land, strengthen the role of market in the allocation of agricultural land, and reduce unnecessary costs in circulation. A standardized and reasonably priced land transfer market can not only meet the needs of farmers who want to give up the land use right to invest in non-agricultural sectors, but also meet the needs of farmers who want to expand the land area, continue to engage in agricultural production, and improve the efficiency of land transfer.

### ***7.2. Establish and improve the guarantee of land circulation system***

The government should conduct in-depth research on the typical problems in the land circulation, formulate corresponding laws and regulations for the relevant problems, and make clear provisions on the procedures, ways of safeguarding rights and price requirements of the land circulation, so as to make the land circulation have legal basis and safeguard the interests of farmers. In order to improve the guarantee of land circulation system, we should give more secure land management rights to agricultural operators and more free space to them, Let the agricultural operators enjoy the right to occupy, cultivate and obtain corresponding income within a certain period of time according to law. On the premise of maintaining the collective ownership and the farmer's contract right, we should better protect the land management right of the management subject and all the rights it needs to engage in agricultural production, so that the transferred land has more stable income, so that the land resources can be used more effectively and reasonably. At the same time, it is necessary to avoid the forced transfer of land in the process of land transfer and protect the legitimate rights and interests of farmers.

### ***7.3. Increase the publicity of land circulation***

Some farmers have low willingness to transfer land, so the government should increase the publicity of land transfer, adopt different forms of publicity according to the actual situation of farmers, explain the relevant policies, implementation methods and significance of land transfer to farmers, deepen their understanding of land transfer, guide farmers to participate in land transfer voluntarily, compensably and legally.

#### **7.4. Strengthen the training of migrant farmers and large farmers**

- After the transfer of land, the family operating income will be reduced. If the wage income is unstable and the quality is low, the income of farmers will be greatly reduced. At present, the property income of the farmers who have transferred the land has become the main source of family income, so to increase the family income of these farmers mainly depends on improving their non-agricultural employment competitiveness and increasing their non-agricultural income level. In order to enable farmers to have certain labor skills and enhance their employment competitiveness, it is necessary to carry out labor skills **training for farmers who have transferred land and have the willingness to work**. We should invest in farmers, strengthen the investment in education, increase the accumulation of human capital, and improve the overall education level of farmers. We should broaden training channels and organize targeted training at different levels. According to the age, gender and cultural level of farmers, carry out different targeted training, make effective use of training resources, and strive for maximum training efficiency according to different groups of people. For example, for the young and middle-aged rural women with higher education level and better quality, on the basis of voluntary enrollment, organize resources for training, so that they have the basic employment ability of nanny, Yuesao and other professions, and organize to participate in relevant qualification tests to improve their employment ability. The older farmers who are not suitable for going out to work, generally have rich experience in agricultural production, can be recommended by the village community to the agricultural park or large agricultural planting households for employment, and continue to engage in agricultural production activities.
- As large farmers of land transfer, their planting experience and technical methods must be more than those of ordinary farmers. On this basis, they will receive specialized training in agricultural production, popularize planting technology, and use advanced science and technology to increase farmers' income. With advanced planting technology, we will promote the construction of agricultural machinery system, and closely integrate advanced planting technology with production mode. Technology is the first factor of production. The lack of technology is not good for the increase of farmland income, the sustainable development of farmland and the increase of farmers' income. Therefore, it is necessary to train the farmers who have transferred land to improve their technical level, production level and income level.

#### **7.5. Establish and improve the rural social security system.**

On the one hand, an important problem that bothers farmers is that after the land transfer, farmers will lose their life support. In order to make the farmers have no worries, it is necessary to give them a "reassuring pill" to transfer the land. The government should make effective policies, gradually establish the urban-rural integrated security system, and integrate the medical insurance and endowment

insurance of the farmers who have transferred their land into the urban social security system, so as to alleviate the living difficulties of the farmers with low income.

One the other hand agriculture as a weak industry, farmers bear a greater risk. The changes in market, natural conditions and other factors will bring incalculable losses to farmers. Therefore, in addition to ensuring the farmers who flow out of the land, we should also ensure the farmers who transfer in the land, so that the land transfer in party can be assured to engage in agricultural production boldly. We should further improve the coverage area of agricultural insurance in China, promote the diversification of agricultural insurance varieties, strive to improve the security standards, and reduce the risk of agricultural production.

Throughout the whole paper, there is no doubt about the effect and significance of land transfer mode on increasing farmers' income. At the same time, for the institutional defects of land transfer, market environment factors, and some problems that may affect farmers' income caused by farmers' own quality, this paper also expounds the possible solutions. China is still in the stage of transition to a new type of agriculture and urbanization. As the foundation of a country, agriculture must be stable so as to ensure the stable development of the country. How to protect the rights and interests of farmers in the long-term reform is a problem we should all pay attention to.

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#### **References**

- [1] Chunchao Wang. Rural land transfer, labor resource allocation and farmers' income growth: An Empirical Study Based on the survey of farmers in 17 provinces of China[J]. Agricultural technology economy, 2011.
- [2] Shunbo Yao, Yajun Guo, Xuexi Huo et al.. An Empirical Analysis of the Effects of China's Land Conversion Program on Farmers' Income Growth and Labor Transfer[J]. Environmental Management, 2010.
- [3] Funing Zhong, Jun He. The key to increase farmers' Income: expanding non-agricultural employment opportunities[J]. Agricultural economic problems, 2007.
- [4] Yuhui Luo. Research on the current situation, problems and Countermeasures of rural land circulation in China under the "Three Rights Separation"[J]. Lanzhou Journal, 2019.
- [5] Tao Wen, Guanghe Ran, Deping Xiong. China's financial development and farmers' income growth[J]. Economic research, 2005.
- [6] Xianling Li. Analysis of rural land circulation based on the income structure of farmers[J]. Special Economic Zone, 2010.

- [7] Juhong Bai, Fei Yuan. An analysis of the relationship between farmers' income level and rural human capital[J]. Agricultural technology economy, 2003.
- [8] Lingguo Chen, Ye Zhang, Zhibiao Liu. Does the confirmation of farmland promote the circulation of rural land in China?[J]. Managing the world, 2016.
- [9] Lijun Liu. A comparative study on the performance of rural land transfer model[D]. Central South University, 2010.
- [10] Liping Huang. Study on the circulation of the right to use agricultural land in China[D]. Xiamen University, 2006.
- [11] Junping Guo, Song Qu, Ying Xia, Kaiyu Lu. Income distribution effect of rural land transfer[J]. Population, resources and environment in China, 2018.