Will Agricultural Land Transfer Promote Agricultural Economic Growth?

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Abstract. in order to further promote the development of agricultural economy, high quality, the article selected 2008-2020 provincial panel data, from the perspective of farmland transfer, the double fixed effects regression model, the intermediary effect model empirical analysis on the influence of farmland circulation of agriculture economy effect. The results showed that: (1) agricultural land transfer had a significant positive impact on agricultural economic growth, and its marginal contribution coefficient was 0.687. (2) the agricultural industry agglomeration level in the process of promoting agricultural higher economic growth play intermediary effect, the mediation effect of 0.363 and farmland circulation mainly through the enhance the level of agricultural industry cluster to promote agricultural economic growth; (3) labor transfer in the process of farmland flow to promote agricultural economic growth also play intermediary effect, the mediation effect of ratio of 0.338. Recommended by speeding up farmland circulation, improve the agricultural industry agglomeration level, promote the rural labor transfer and other measures to further play a role of farmland circulation for the promotion of agricultural economic growth.

Keywords: farmland circulation; Agricultural industry agglomeration; Labor transfer; Agricultural economy; Intermediary model

1   Introduction

Since China's reform and opening up, Chinese rural economy to[1] achieve the leap development of the agricultural production mode and production capacity, agricultural output from 111.75 billion yuan in 1978 to 2020, 7.17482 trillion yuan, grain output increased from 1978 tonnes in 304.77 million to 669.49 million tons in 2020. Agricultural economic goals from increase the supply of agricultural products, adequate food and clothing to increase farmers' income, meet the demand of the people a better life[2]. Promote the development of high quality agricultural economy is a new era the inevitable requirement of the economic development of socialism with Chinese characteristics, is the inevitable choice to carry out the new development concept, conform to the law[1] of development of market economy.

For a long time, land as the bearing capacity of agricultural production, bear the guarantee the important functions[3] of farmers' income, but with the agricultural

comparison income falling, farmer's production enthusiasm severely affected, non-farm payrolls rose[4-5] sharply, leading to problems such as farmland pastureland, land financial mismanagement. Seven since 1988 session of the first meeting of the National People's Congress to amend the constitution, allowing the "for rent" farmland circulation form, farmland conversion is based on household contract responsibility system as a kind of system innovation, is the important content of rural land system reform, is also a change in the way of agricultural production elements configuration forms, is the effective transformation of farmland property right, To change the mode of operation of agriculture has laid a foundation, provides the power[6]. In recent years, the continuous relaxation and continued support of policy, create a good environment for accelerating of farmland circulation, at the same time of farmland circulation was deepened, our country agriculture rural areas appear a series of structural change. Factors such as land, labor, capital flow, composition and configuration, such as agricultural cooperatives, the family farm to represent a new type of[7] agricultural management main body, continue to promote agricultural economic growth.

Factors that affect China's agricultural economic growth has always been the focus of the scholars, the existing research shows that crop planting area, applying fertilizer content, digital[9] agriculture policy, agricultural mechanization level[8], rural finance, science and technology innovation[10], investment[11] in agriculture, agricultural insurance[12] and other factors will affect the growth of agricultural economy. On the whole, the research system on the influencing factors of agricultural economic growth is relatively mature, which can provide certain scientific guidance for the further promotion of the high-quality development of China's agricultural economy. But few scholars analysis of farmland transfer directly influence on agricultural economic growth, to a certain extent affect the perfection of the factors that affect agricultural economic system.

In farmland circulation economy influenced the literature focuses on land use efficiency, investment of agricultural production and farmers income growth and distribution, product and factor markets, poverty reduction, etc. Existing studies also point out that agricultural land transfer will affect agricultural development pattern [13] and operation scale [14], as well as agricultural labor transfer [15], farmers' living standard [16] and per capita income [44]. And agricultural economic growth is closely related to all aspects of the agricultural development, inevitably will be affected by farmland conversion, but farmland circulation of agriculture economy effect is uncertain, so this article by building panel model to study the effects of farmland circulation of agriculture economy, and agriculture industry agglomeration, labor transfer as a intervening variable, using the mediation model, Research and analysis of farmland circulation effect of agricultural economic growth.

2   Theoretical Analysis

2.1   The Influence Factors of Agricultural Economic Growth

The influencing factors of agricultural economic growth are the focus of academic research, and the relevant achievements are very rich. Zhang hao and Chen pointed out

that agricultural policy impact on China's agricultural development and agricultural productivity significantly, in agricultural production elements of the input factors in their use of fertilizers and agricultural machinery biggest[8] contribution for output. Even jung hua found that rural financial digital can significantly boost agricultural economic growth, and agricultural economic growth has obvious "digital financial threshold effect"[9]. Chang, Song Hongyuan think science and technology innovation is not only significant to promote agricultural economic growth in this region, but also has significant spatial spillover effect to promote the surrounding areas of agricultural technology[10]. Wang wei and yan-juan zhao agricultural investment, agricultural system are analyzed theoretically, the influence[11] of scientific and technological progress to agricultural development in our country. On this basis, the Jin Shaorong further study found that such as agricultural insurance significantly promote agricultural economic growth, at the same time as the advanced stage of development of agricultural insurance, the promoting effect on economic growth is gradually enhanced[12]. Guoliang through the analysis of the theory of economic growth and economic growth of agricultural development process, and points out the factors in economic growth are the growth of the household contract responsibility system, agricultural investment, agricultural science and technology progress, and agricultural labor force quality enhances[17] unceasingly. Yan Junqiang and Michael lee, general technical progress is the main influence factors[18] of agricultural economic growth. Xue Wenlong, guohua, points out that the first industry practitioners and negatively correlated with fishing output value of agriculture and forestry, and the cultivated land and farming area and weak positive correlation[19] to the fishing output value of agriculture and forestry. Xiwen luo and other scholars believe that raise the level of agricultural mechanization is one[20] of the important ways to promote sustainable development of agricultural resources. Chang hung and verified by Richard cheung kuen agricultural informationization promoting effect on agricultural economic growth and has a lagging effect[21].At the same time, Yang, Leatham and Innes proved from the perspective of financial subsidies for agricultural insurance that policy-based agricultural insurance could improve the level of social economic welfare and promote the growth of agricultural economy [45]-[46].

To sum up, the agricultural economy growth not only affected by the factors of production inputs, such as farmland, labor input, fertilizer use, etc. And agricultural policies, technological innovation, technological progress, investment in agriculture, finance, digitization, agricultural mechanization, agricultural informatization on the influence of the agricultural economic growth also nots allow to ignore.

2.2   Agricultural Land Circulation and Its Impact

Land is one of the basic elements of agricultural economic development, China's rural land ownership, collective farmers rely on the collective membership shall be entitled to enjoy the right to the contracted management of rural land. The 2018 revision of the "rural land contract law" article 33 and article 34, the contractor can be to belong to the same collective economic organizations of land between the right to the contracted management of land swap, the contractor may transfer all or part of the right to the

contracted management of land to the collective economic organizations of other farmers[6]. Rural land circulation is the rural household contract of land by legal form, keep contract right, transfer the rights to the behavior of the farmers or other economic organization, its essence is the land resources between the different main body configuration again. The Chinese government over the years dedicated to promote farmland circulation, its purpose is to promote the scale management and agriculture development, guarantee the farmers' land property rights, and prevent farmers lost ground in order to maintain social stability[22].

Affect the efficiency of exploration in farmland circulation, such as xin-hai lu farmland circulation is proved the positive spatial spil[3]lover effects on rural poverty reduction. Kuang Yuanpei et al. found that farmland circulation had a significant positive effect[13] on agricultural intensification development. Zhou Ling points out that the farmland circulation will expand the scale of farmland, promote the optimal allocation of factors of agriculture, enhance the agricultural industry integration of the structure of the market driving force structure change[6] and promote agricultural inputs. Fei et al points out that agricultural land transfer can promote the agglomeration of agricultural industries, thus improving the household income level of farmers participating in agricultural land transfer [47].Kit, Su Qunze think through farmland circulation for the purpose of scale operation only to increase income, and improve the land productivity is only a means[23] to increase their income. Xu Qing etc. Points out that the farmland circulation can optimize the land resource allocation efficiency, the expansion of agricultural management is helpful to promote the farmers'[24] income. Lv Peilu scholars study found out into farmland, local non-farm jobs and non-agricultural workers help to narrow the income gap[25] between farmers. Zhang peng put forward the Internet, farmland into could significantly promote the sustainable livelihoods ability of human, financial and psychological capital stock accumulation[26].

In conclusion, the farmland circulation on the one hand, to expand the scale of agricultural management, promote the optimal allocation of resources, increase farmers' income and improve the efficiency of agricultural production; On the other hand can also affect the agricultural development pattern, promotes the rural poverty reduction, promote the sustainable livelihood and promoting agricultural elements flow and narrow the gap between farmers income.

3   Research Hypothesis

3.1   Impact of Agricultural Land Transfer on Agricultural Economic Growth

At present, the research system of the influencing factors of agricultural economic growth has been relatively mature, and the existing literature has many benefits for the exploration of agricultural land circulation and its influencing factors. However, few scholars have paid attention to the relationship between agricultural economic growth[6] and agricultural land transfer, and only a few scholars have studied and analyzed the effect of agricultural land transfer on agricultural economic growth, but the specific effect is still uncertain.

Therefore, this paper focuses on exploring the relationship between agricultural land transfer, agricultural industry agglomeration, labor transfer and agricultural economic growth. First of all, the land circulation can reduce the farmland past[27]ureland, and expand farmers actual land area. Along with the advance of urbanization, the land finely, concurrent-business agricultural problems also arise, some farmers choose workers into the city to the contracted land waste, and can make this part of the land management rights of farmland circulation in dedicated to agricultural production and operation of the individual or organization, which not only provides more land for production operators, At the same time also more fully enliven the produce of the land; Furthermore, farmland circulation can improve agricultural management scale, improve the efficiency [28]of agricultural production. Inputs is the base of agricultural production, land, labor, capital is the basic elements [6]of agricultural production. However, farmers generally operate in small scale, which is easy to be limited by production factors, which is not conducive to the improvement of agricultural production efficiency and the increase of total agricultural output value, and hinders the further development of agriculture. Can promote farmland circulation of land concentration, which is beneficial to improve the agricultural land use mode and scale of operation of change the agricultural production structure, forming scale economy effectively promote agricultural managing scale, for agricultural production[14] and operation of land, capital and management support, and improve the efficiency of agricultural production.

put forward the hypothesis 1: farmland circulation of agricultural produce positive influence on economic growth, the area of farmland circulation would increase agricultural output in order to promote agricultural economic growth.

3.2   The Mechanism of Action of Farmland Circulation of Agricultural Economic Growth

3.2.1 Industrial Agglomeration and Its Mediating Effect

In farmland circulation influence in the process of the agricultural economic growth, agriculture industry agglomeration is an important intermediary variable.

Agriculture industry agglomeration is the inevitable outcome of the new stage of development of agriculture and rural areas, is to improve agricultural comprehensive production capacity, enhance the competitiveness of agriculture, agricultural scale advantages into full play the important way and the inevitable choice, its also gradually become our country agriculture industry transformation and upgrading, cohesion of agricultural modernization and effective choice. And the marginal output of farmland circulation have flattening effect, scale economy effect and improve the finely effect[13] makes the efficiency of agricultural land into a higher scale operators, are more likely to promote the formation of the agricultural industry cluster, so as to promote the economic growth in agriculture. The reason is that, compared with small farmers scale operators is more close to the "[14]rational agent", have stronger capital integration ability, ability of land use, and more efficient agricultural labor force, while promote the agricultural industry cluster, can effectively integrate agricultural land, arouse vigor, improving agricultural resources use efficiency[15] and reduce consumption of land and

finely level and agricultural supplies, , in turn, increase agricultural output value, promote the economic growth in agriculture.

Therefore put forward the hypothesis 2: farmland circulation to promote the agricultural industry cluster and promoting agricultural economic growth, the agriculture industry agglomeration in the process of promoting agricultural higher economic growth play intermediary effect.

3.2.2 Labor Migration and Its Mediating Effect

In the process of agricultural land transfer affecting agricultural economic growth, agricultural labor transfer is an important intermediary variable.

Agricultural labor force transfer is refers to the agricultural production department of labor to non-agricultural production flow. With the progress of science and technology and the development of social economy and the improvement of urbanization rate, some farmers choose to, lead to the agricultural sector labor transfer to non-agricultural sectors gradually, is the result of the increasing agricultural labor productivity and land productivity, is the common law of human social and economic development. About farmland circulation and labor transfer, the relationship between the Chen Ziyan pointed out in farmland circulation in the form of rural labor transfer to upgrade played an important role[15] in promoting. Wu Jinglian believes that promoting the transfer of rural surplus labor to urban non-agricultural industries is the central link[29] to solve the problems of "agriculture, rural areas and farmers". And far and wu fang study of farmland circulation depends on the industrial solving rural labor transfer in farmland circulation area differences[30]. The reason is that the income level of workers is determined by their marginal rate of return, and there are a large number of surplus labor in the traditional department, under the condition of the farmers' income can only maintain at a low level[29]. Therefore, for a relatively stable expected income of migrant workers, in a limited working time, when the marginal return to labor of migrant workers is higher than the marginal return to labor of agriculture, the labor allocation will constantly shift from agriculture to migrant workers. Farmers, therefore, is on the basis of the wage income of migrant workers income expectations, choose the circulation of farmland, such already can obtain the rent farmland circulation, and can obtain salary income[30] of migrant workers. For those flowing into the land scale management main body, the body will effectively integrate agricultural land, improve the utilization efficiency of agricultural supplies, raise agricultural output to increase farmers' income[31], to make up the "rural land circulation, labor transfer, and agricultural output increase of empirical research path.

Therefore, Hypothesis 3 is put forward: agricultural land transfer can promote agricultural economic growth by promoting labor transfer, that is, labor transfer plays an intermediary role in the process of agricultural land transfer promoting agricultural economic growth.

4   The Empirical Study Design

4.1   Farmland Circulation of Agriculture Economy Effect Analysis

4.1.1 Econometric Model

Main effect of econometric model: in order to reduce missing variables and endogenous, this paper build area and time of farmland changing to double fixed effect panel regression model to estimate the effect of agricultural carbon intensity, to verify the hypothesis 1:

$$Ao = \alpha_1 + \beta_1 Land + \delta_1 Is + \delta_2 Mach + \delta_3 Er + \delta_4 Fer + \sigma_i + \mu_t + \varepsilon_{it} \tag{1}$$

Type (1) : *Ao* on behalf of the agricultural economic growth, expressed in agricultural output, *Land* on behalf of farmland circulation, *Is，Er，Mach，Fer,* the control variable, the regional industrial structure, environmental regulation appropriate amount of fertilizer, agricultural mechanization level, α said constant term, beta said explanation variable coefficient, the delta as the control variable coefficient; Sigma I said region fixed effects; μ_t represents time fixed effects; *εit*   is random error term. In order to eliminate the influence of heteroscedastic analysis results and the model of agricultural output, farmland circulation, agricultural mechanization level, find the exponential.

4.1.2 Variable Selection

(1) be explained variables: agricultural economic growth (Ao). The external manifestation of agricultural economic growth is the growth of total agricultural output value. This paper takes the total agricultural output value of each province as the measurement index of agricultural economic growth, which is a more systematic, comprehensive and reliable set of output indicators[10] in the current statistical data.

(2) Explanatory variable: agricultural Land transfer (Land). Household is the basic unit of farmers'[16]   farmland management, and farmland transfer will lead to the change[30] of cultivated land area.

(3) the intermediary variables:

Agricultural industrial agglomeration level (Lq). According to the above theoretical analysis and hypothesis, industrial agglomeration can promote regional industrial structure upgrading and transformation, thus stimulating the regional economic growth[31], therefore this article selects the agricultural industry aggregation degree as the intermediary variable. At the same time, referring to the existing literature[32], this paper selects the location entropy index to measure the level of agricultural industry aggregation, and the specific calculation formula is: agricultural industry aggregation level = (regional total agricultural output value/regional total product)/(national total agricultural output value/national GDP).

Labor transfer (Tran). Modern industrial and commercial department of labor productivity and worker wages are much higher than traditional agriculture department, the tradition of the department of agriculture surplus labor transfer to the modern industrial sector can improve this part of the transfer of the income level and living[29]

standards of the workers. Reference for the research[33] of scholars, this paper constructed the agricultural labor force transfer rate index to reflect the degree of agricultural labor transfer: labor transfer ratio = (number of rural employment - rural primary industry practitioners)/rural workers.

(4) control variables:

Regional industrial structure (Is). Industry can reflect regional industry accounted for the proportion of economic structure, industrial structure reasonable collocation of the relationship with the growth of the agricultural economic benefits, the reasonable structure of agricultural industry promotes the growth of agricultural economy, on the other hand, if the lack of rationality of the agriculture industry structure, will lead to agricultural economy, zero growth and negative growth problems[43] Otherwise, if the agricultural industry structure is not reasonable, it will lead to zero growth and negative growth of agricultural economy.[34]

Environmental regulation (Er). Governments at all levels in the "two sessions" during a report in the past year's performance and future work plan, the report in the process of the formation of condensed the social demands and consensus, the government plays a decisive role in the guidance of the work. Therefore, the government work report to the environment value can reflect the environment government regulation and control policy as a whole[35]. Reference of existing research methods[36], this paper use the provincial government work report and the environment related words appear frequency and proportion as the local government environmental regulation variables.

Agricultural mechanization level (Mach). Machinery is one of the important tools and important agricultural production factors, can provide support and guarantee for agriculture and national economic development, is an important symbol of modern agriculture, can promote the agricultural labor force transfer and farmers' income, to accelerate the process[37] of modern agricultural construction. Agricultural mechanization in agricultural activities reflected by the unit output value of agriculture to realize agricultural mechanical power, expressed [34]in total power of agricultural machinery.

Find (Fer). The wholesale use of chemical fertilizers for agricultural production in China over the past 30 years of rapid growth has played an important role[38], but at the same time, of the total cost of the chemical fertilizer to improve agricultural production also has serious negative impact on the environment, and threaten the sustainable development[39] of agriculture in our country, therefore this article selects the provinces fertilizer amount as control variables for this paper.

4.2   Farmland Transfer Mechanism Analysis of the Agricultural Economic Growth

4.2.1 Econometric Model

In this paper, using the panel data mediator effect model analysis of farmland circulation mechanism of agricultural economy. Three stage intermediary effect model was constructed, the first stage intermediary effect model formula for the type (1), the second and third stage see type (2) and (3).

$$lq = \alpha_2 + \beta_2 lnx + \sum control + \sigma_i + \mu_t + \varepsilon_{it} \tag{2}$$

$$ao=\gamma_0+\gamma_1\ln x+\gamma_2 lq+\sum control+\sigma_i+\mu_t+\varepsilon_{it} \qquad (3)$$

Type (2) - (3) : in the *lq* as intermediary variables; a_2, γ_0 to intercept item; β_2, γ_1 is the coefficient of farmland circulation; γ_2 as the intermediary variable coefficient; $\sum$ *control* as control variables; The other variables have the same meaning as Equation (1).

4.3   Data Sources

Based on 30 provinces in China as the research area, time setting for 2008-2020. Among them, Hong Kong, Macao and Taiwan and Tibet region due to there are large difference between agricultural characteristics and the rest, so not included in the analysis. Research using the provincial panel data, data from China statistical yearbook of China agricultural statistics yearbook in rural China statistical yearbook "agricultural statistics in China" and the National Bureau of Statistics official website, such as agricultural NongCunBu's official website. To avoid the interference of abnormal data, based on the analysis of the data before the end processing. Table 1 shows the results of descriptive statistical analysis of all variables.

Table 1. Descriptive statistics

Variable types	The variable name	Symbols	Mean value	Standard deviation	Minimum	Maximum	Number of observations
Explained variable	Agricultural economic growth	Ao	7.068	1.051	4.628	8.956	390
The core variable	Agricultural land transfer	Land	15.73	1.239	12.01	18.00	390
Mediating variables	Agglomeration of agricultural industry	Lq	1.132	0.663	0.0540	2.958	390
	Labor transfer	Tran	0.305	0.110	0.127	0.723	390
	Regional industrial structure	Is	10.12	5.316	0.300	26.10	390
Control variables	Environmental regulation	Er	0.003	0.001	0.001	0.008	390
	Mechanization of agriculture	Mach	7.648	1.101	4.597	9.427	390
	Fertilizer application rate	Fer	4.817	1.120	1.823	6.559	390

5 Empirical Analysis And Testing

5.1 Farmland Circulation Effect of Agricultural Economic Growth

5.4.1 Main Effect Analysis

This paper, by means of gradually adding control variables, further analysis of the main effect, at the same time, according to the type (1) computing available farmland circulation effect on agricultural economic growth, are shown in table 2. Farmland changing of agricultural output analysis, the influence coefficient is 0.064, the 1% level of statistical significant. This shows that the farmland transfer significant positive influence on agricultural economic growth, the area of farmland circulation expanded significantly improve agricultural output in order to promote agricultural economic growth. Thus, hypothesis 1 was established. The reason is that agricultural land circulation is the effective means to realize optimal allocation of resources, to achieve scale operation, the liberation of rural surplus labor force and increase farmers' income[40]. For a long time, the agricultural small operations as a result of the limitation of land, capital and management, is not conducive to advanced agricultural technology and equipment, hindered the efficiency of agricultural production and agricultural output value increase[34]. Land circulation for land management rights transfer to the dedicated agricultural production and operation of the individual or organization, the high efficiency of farmers are often willing to turn to in order to realize the land scale management, on the one hand can reduce the land pastureland, enlarge planting area, enhance the agricultural scale to promote agricultural output has increased[14], On the other hand of farmland circulation is embedded into the agricultural production and operation of advanced agricultural technology and equipment to provide land, capital and management support, scale of economic subject in a stable property under the expected farmers will consider more long-term investment income, more actively adopted to strengthen sustainable land production capacity of green agriculture technology[34], At the same time, through the adoption of modern production concept and agricultural machinery in order to reduce the production cost, improve agricultural productivity and market competitiveness[41]-[42], and improve agricultural output in order to promote agricultural economic growth.

As for the control variables, the influence coefficient of regional industrial structure on agricultural economic growth is 0.021, which is significant at the statistical level of 1%. This indicates that the expansion of the proportion of the total output value of the primary industry in the total output value of the region can promote the growth of agricultural economy. The reason may be that the secondary and tertiary industries will be relatively backward in the regions with a high proportion of the primary industry. At this time the region agriculture industry chain extension is difficult, regional agricultural output promotion rely more on primary agricultural production[34]. Environmental regulation coefficient is 14.458, and the influence of the 1% level of statistical significant, suggesting that environmental regulation is strict, regional agricultural output is lower. May be the reason is that environmental regulation to promote predict regional government's emphasis on environmental issues, and the development of Chinese agricultural economy in pursuit of economic efficiency as the goal, at the early stages of

the agricultural development relies on into a huge variety of means of agricultural production, to expand the scale of production, thereby promoting the ascension[34] of agricultural output. But with more strict environmental regulation, on the contrary may suppress the growth of agricultural economy. Mechanization level of influence coefficient is 0.252, the 1% level of statistical significant, indicating that agricultural mechanization level of ascension to promote agricultural economic growth, improve the level of agricultural mechanization, is one[20] of the important ways to promote sustainable development of agricultural resources. Its reason lies in mechanization level to enhance the level of agricultural production efficiency and productivity, which saves the production cost, thereby promoting the ascension of agricultural output. Find about agricultural economic growth influence coefficient is 0.572, the 1% significance level, appropriate amount of fertilizerthat increase to promote agricultural economic growth, because in the process of the development of agricultural economy, agricultural chemical input materials have long been important impetus of agricultural economic growth in China.

Table 2. Main effect regression

Variables	(1)	(2)	(3)	(4)	(5)
Farmland circulation area	0.105 ***	0.113***	0.113 ***	0.109 ***	0.064 ***
	(3.519)	(3.837)	(3.865)	(4.251)	(2.593)
Regional industry bodies		0.019***	0.020 ***	0.021 ***	0.021 ***
		(3.229)	(3.326)	(3.956)	(4.296)
Environmental regulation			13.497 **	13.341 **	14.458 ***
			(2.013)	(2.279)	(2.650)
Mechanization level				0.446 ***	0.252 ***
				(10.414)	(5.273)
Fertilizer application rate					0.572 ***
					(7.321)
constant	5.004***	4.649 ***	4.681***	1.403 ***	0.778 *
	(11.549)	(10.533)	(10.645)	(2.825)	(1.655)
Observations	390	390	390	390	390
R^2	0.785	0.791	0.794	0.843	0.864
Region fixed effect	Yes	Yes	Yes	Yes	Yes
Point in time fixed effects	Yes	Yes	Yes	Yes	Yes

Note: ***, ** and * indicate significance levels at 1%, 5% and 10%, respectively, and numbers in parentheses are robust standard errors.

5.1.2 Robustness Analysis

In this paper, by changing the estimation model, adjust the research time for the main effect estimation robustness test, the results are shown in table 2. Fixed effects model (1) only control region, the influence of farmland circulation coefficient is 0.388, significant at 1% level; Model (2) will double d fixed effects model replacement for double d random effects model, it is concluded that the influence coefficient is 0.384, significant at 1% level; Model (3) use single-dimensional random effect model of fixed point at the same time, the results is 0.061, is still in the 1% significant level. These data suggest that influence coefficient of farmland circulation of agricultural output continues to significantly positive, proved that the main effect estimates with robustness.

Table 3. Robustness test

variable	(1)	(2)	(3)
Farmland circulation area	0.388***	0.384***	0.061***
	(0.017)	(0.017)	(0.023)
Regional industrial structure	0.009	0.010*	0.018***
	(0.006)	(0.006)	(0.004)
Environmental regulation	12.174	13.113	14.088
	(7.037)	(7.247)	(5.431)
Level of mechanization	0.503***	0.413***	0.233***
	(0.058)	(0.056)	(0.045)
Fertilizer usage	0.054	0.165***	0.582***
	(0.086)	(0.063)	(0.058)
Constant	3.198	2.983	0.955***
	(0.471)	(0.318)	(0.357)
Observations	390	390	390
R^2	0.727		
Region fixed effect	Yes	No	No
Point in time fixed effects	No	No	Yes
Random effects		Yes	Yes

Note: ***, ** and * indicate significance levels at 1%, 5% and 10%, respectively, and numbers in parentheses are robust standard errors.

5.2   Effect Mechanism of Farmland Transfer on Agricultural Economic Growth

5.2.1 Mediating Effect Analysis

According to Equation (2), the influence of farmland transfer on agricultural industrial agglomeration level and labor transfer rate can be obtained, as shown in Model (1) and Model (3) of Table 4. According to the setting of Equation (3), the impact of farmland circulation and mediating variables on agricultural economic growth can be estimated, as shown in Model (2) and Model (4) of Table 4.

According to table 4 (1) model of farmland circulation in agriculture industry agglomeration level of influence coefficient is 0.189, the 1% level of statistical

significant, showed that farmland circulation area would significantly enhance the level of agricultural industry cluster, and by a table 4 model (2) the agriculture industry agglomeration level of the agricultural output influence coefficient is 0.697, It is significant at the statistical level of 1%, indicating that the improvement of agricultural industry agglomeration level can significantly increase the total agricultural output value and promote the growth of agricultural economy. Therefore, agricultural land transfer can promote agricultural economic growth by improving the agglomeration level of agricultural industry, that is, agricultural industry agglomeration level plays an intermediary role in the process of agricultural land transfer affecting agricultural economic growth, Hypothesis 2 is established. Further analysis showed that the direct effect coefficient of agricultural land transfer on agricultural economic growth was 0.064, while the indirect effect coefficient of agricultural land transfer on total agricultural output value through agricultural industry agglomeration level was 0.256. This indicated that the promotion effect of farmland transfer on agricultural economic growth was mainly realized by improving the agglomeration level of agricultural industry. The mechanism can be summarized as follows: the expansion of farmland circulation area → the increase of agricultural industry agglomeration level → the increase of total agricultural output value.

According to table 4 (3) model available farmland circulation influence on labor transfer coefficient is 0.040, the 1% level of statistical significant, suggests that expanding farmland circulation area can promote the transfer of agricultural labor force, and by a model in table 4 (4) the agriculture industry agglomeration level of the agricultural output influence coefficient is 2.773, the 1% level of statistical significant, It shows that the increase of labor transfer rate can significantly increase the total agricultural output value and promote the growth of agricultural economy. Therefore, agricultural land transfer can promote agricultural economic growth by increasing the labor transfer rate, that is, labor transfer plays an intermediary role in the process of agricultural land transfer affecting agricultural economic growth, Hypothesis 3 is established. The mechanism can be summarized as follows: the expansion of farmland circulation area → the increase of labor transfer rate → the increase of total agricultural output value.

Table 4. Intermediate effect test

Variables	(1)	(2)	(3)	(4)
	Agglomeration degree of agricultural industry	Total agricultural output value	Labor transfer rate	Total agricultural output value
Agricultural land circulation area	0.189***	0.256***	0.040***	0.279***
	(0.013)	(0.018)	(0.002)	(0.020)
Aggregation level of agricultural industry		0.697***		
		(0.060)		
Labor transfer rate				2.773***
				(0.340)
Control variables	Yes	Yes	Yes	Yes

Constant	5.198	0.427	0.143	2.802
	(0.353)	(0.511)	(0.068)	(0.436)
Observations	390	390	390	390
R^2	0.519	0.801	0.565	0.770
Fixed effects in	Yes	Yes	Yes	Yes

Note: * * *, * * and * respectively 1%, 5% and 10% significance level, the Numbers in brackets for the robust standard error; Details of control variables are omitted due to space limitations

6　Conclusion and Suggestion

6.1　Conclusion

This article from the perspective of farmland circulation use of 2008-2020 provincial panel data, the panel model is set up to investigate farmland circulation influence on agricultural economic growth, and using effects of mediation model, through analysis of farmland circulation agriculture industry agglomeration effect of agricultural economic growth. This paper get the following conclusions: (1) the farmland transfer significant positive influence on agricultural economic growth, the marginal contribution rate of 0.064. (2) the agricultural industry agglomeration level in the process of promoting agricultural higher economic growth play a mediation effect of farmland circulation in agriculture industry agglomeration level of influence coefficient is 0.189, the mediation effect of ratio of 0.363. (3) labor transfer in the process of promoting agricultural higher economic growth also play intermediary effect, farmland circulation influence on labor transfer rate coefficient is 0.040, the mediation effect of ratio of 0.338.

6.2　Suggest

According to the research conclusion, put forward the following Suggestions.

First, Suggested that accelerate the farmland circulation, play a role of farmland circulation for the promotion of agricultural economic growth. To speed up the structural reforms to boost agricultural supply side, continue to deepen the reform of mechanism of system of agriculture, establish modern industrial system, production system and management system, further adjustment of agricultural structure, development of moderate scale management, cultivating new type of agricultural management main body. On the basis of unwavering adherence to the rural land contract relationship, we will promote the continuous implementation of the "separation of the three powers" and lay a foundation for the development of agricultural land circulation. At the same time to strengthen a variety of ways to guide the land circulation, and promote the agricultural land to large farming, agricultural cooperatives, agricultural association new operators to focus on agriculture, promote agricultural output increase unceasingly, to promote agricultural economic growth with high quality.

Second, Enhance the level of agricultural industry gathered and exerting industrial agglomeration of agricultural intermediary effect of economic growth. Give full play

to the agricultural industry cluster of agglomeration economy and external economy effect, speed up the formation of specialization, scale, modernization of the agricultural industry development, promote agricultural regional collaborative process at the same time, through the scale effect, make the region in the Shared link "factors of" produce benign interaction, construct platform for industrial agglomeration, fully promote the neighborhood to a Shared resource, market and technology, To build advantageous agricultural zones, promote professional agglomeration, thus promoting agricultural economic growth.

Third, Suggestions to accelerate rural labor transfer, give play to the intermediary effect of agricultural economic growth. Government and village collective should continue to encourage farmers to actively participate in farmland circulation and labor transfer, give full play to the rural land circulation and labor transfer at this stage to improve farm household income levels, improve rural internal income gap, and the positive role of promoting agricultural economic growth. Improve rural labor force market, increase the rural labor force employment opportunities, expand channels of farm households' income. Further promote the reform of household registration system, to a greater degree of security labor force non-agricultural population towns have equal basic public services, reduce the risk of peasant household labor transfer and uncertainty.

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