

The Impact of Land Rights Confirmation Policy on Rural Land Circulation -- Empirical Analysis Based on DID

Lanqing Lyu *

School of Politics and Public Administration, Qinghai University for Nationalities, 810007 Xining, China

* Corresponding author: 2023390074@qhmu.edu.cn

Abstract. Rural land ownership confirmation is an important measure of China's fundamental agricultural reform. While safeguarding the legitimate rights and interests of rural families, land ownership confirmation changes the structure and intensity of their land property rights, and affects the circulation of rural land, optimizing the allocation of rural land and labor resources. This article focuses on the perspective of policy evaluation, based on data from provinces, regions, and cities across the country from 2010 to 2021, and uses the difference-in-difference method to explore the impact of rural land rights confirmation policy on land circulation. The results show that the implementation of rural land ownership confirmation policies in China has a significant promoting effect on land transfer. Based on this, suggestions are proposed to strengthen the understanding of rural land rights confirmation, continuously improve the rural land registration and guarantee system, and improve the land transfer market, to enhance the impact of rural land rights confirmation policy on land transfer.

Keywords: Confirmation of land rights, land circulation, difference-in-difference model.

1. Introduction

China's rural land policy was established because of the "household contract management responsibility system", and a series of "three rural" policies and documents issued by the Party Central Committee all focused on rural land contract management rights. Confirmation of land rights refers to the determination of the ownership, affiliation and other rights of land within a certain scope in accordance with the provisions of laws and policies; land circulation refers to the transfer of land use rights to other economic organizations by peasant families by retaining their land contracting rights, that is, to retain the contracting rights and transfer the use rights. With the comprehensive deepening of China's rural reform, the relevant policies, laws and regulations of land circulation based on the background of land ownership confirmation have been continuously refined and improved [1]. The Rural Land Contract Law came into effect in March 2003 marked the formal establishment of the system for the circulation of land contract management rights in China, the Administrative Measures for the Circulation of Rural Land Contract Management Rights promulgated in 2005 detailed the specific requirements for the circulation of land contract management rights, the Decision on Several Major Issues Concerning Promoting Rural Reform and Development issued in 2008 clearly put forward the confirmation of rural land rights, and the 2014 Opinions on Guiding the Orderly Circulation of Rural Land Management Rights and the Development of Moderately Large-scale Agricultural Operations", which clearly states that it is necessary to stabilize the contracting relationship and promote the registration and issuance of certificates for the confirmation of rights as an important basis for guiding the circulation of rural land management rights and the development of moderately large-scale agricultural operations, and put them in the first place, put forward the goal of completing the confirmation of contracted management rights within five years, and start to carry out pilot projects for land ownership confirmation in Shandong, Anhui and Sichuan provinces. In January 2015, the scope of the pilot project was expanded to nine provinces (autonomous regions), including Hubei, Hunan, Jiangsu, Jiangxi, Guizhou, Henan, Ningxia, Gansu and Jilin, and in 2019, the newly amended Rural Land Contract Law transformed the "separation of powers" into a legal norm, and in March 2021, the Administrative Measures for the Circulation of Rural Land

Management Rights were promulgated to provide a basis for protecting the legitimate rights and interests of both parties to the transfer from the institutional level [2].

2. Research Hypotheses

The existing research on rural land ownership confirmation and land circulation is more qualitative description, and from the perspective of the relationship between the two, it is also more qualitative judgment, and the results of specific research need to be further tested, and the conclusions on the impact of land right confirmation on land circulation are inconsistent, and there is no unified consensus in the academic community, so it is necessary to conduct in-depth research on this issue [3, 4]. In summary, this paper takes the average annual growth rate of rural land transfer as a quantitative indicator to reflect the impact of land right confirmation on land transfer, and by combining the existing theoretical achievements in the academic community, it intends to conduct qualitative and quantitative research on land rights confirmation, land circulation and the correlation between them in the pilot provinces (regions) of rural land rights confirmation from the empirical level [5, 6].

Research hypotheses: The land rights confirmation policy can make land property rights more stable and promote land circulation.

3. Study Design

3.1. Model Selection and Data Sources

The data selected in this paper are from the "China Statistical Yearbook", "China Economic and Social Big Data Research Platform-Rural Revitalization Special Database", "Chinese Population and Employment Statistical Yearbook" (2010-2023), using Excel to calculate the data, and then using the difference-in-difference method to use stata software for statistical description, regression analysis and other data analysis. Examine whether the confirmation of rural land rights has significantly increased the area of land circulation, and if so, analyze the significant reasons, and if not, what are the constraints.

3.2. Variable Selection and Model Description

In this paper, the difference-in-difference model is set up to construct a "control group" between the implementation of the "land rights confirmation" policy and other "control groups" without land rights confirmation, and to compare the differences between the land transfer group and the control group before and after the policy by controlling other factors, so as to test the effect of the land rights confirmation policy. In 2015, 12 provinces (Shandong, Anhui, Sichuan, Henan, Jiangsu, Hubei, Hunan, Jiangxi, Gansu, Ningxia, Jilin and Guizhou) were selected as the circulation group, and 12 provinces (cities) of Heilongjiang, Liaoning, Inner Mongolia, Qinghai, Shaanxi, Shanxi, Hebei, Chongqing, Guangdong, Fujian, Hainan and Yunnan were selected as the control group. The data for the six years before the reform (2010-2015) and the data for the six years after the reform (2016-2021) were taken separately.

In this paper, the explanatory variable Y is selected as the annual growth rate of land transfer area based on 2010.

Core explanatory variables: A is the pilot group of whether rural land rights are confirmed in the whole province, the value of "yes" is 1, the value of "not" is 0, T is the time of reform, and the value is 1 after the implementation year of the pilot policy of land rights confirmation (2015), otherwise the value is 0;

The control variable is: Industrial Structure (STGDP) - the sum of the added value of the secondary and tertiary industries as a proportion of GDP, Human Capital (EDU) - years of schooling, Government Size (Financial) - the proportion of government fiscal expenditure to GDP, and the 1% and 99% quantiles of all continuous variables are tailed. Considering the impact of land ownership confirmation policy together with the above-mentioned conditions such as industrial structure, human

capital, and government size, the following model is established to analyze the impact of these factors on land transfer:

$$Y_{i,t} = b_0 + b_1 A_{i,t} + b_2 T_{i,t} + b_3 A_{i,t} \times T_{i,t} + b_4 Ctrl_{i,t} + Year + \varepsilon_{i,t} \quad (1)$$

Among them, Y is the annual growth rate of land circulation area based on 2010; T is the reform time, Ctrl is the control variable above, Year is the annual dummy variable, ε is the residual term, and the model standard error is adjusted for White heteroskedasticity.

4. Empirical Analysis

4.1. Descriptive Statistics

To get a preliminary understanding of the characteristics of the variables, the sample size, minimum, median, maximum, mean, and standard deviation of each variable are described in detail. Table 1 reports the results of descriptive statistical analysis of the main variables in this paper.

Table 1. Descriptive statistics

variable	sample size	min	median	max	mean value	standard deviation
Y	288	0.000	0.161	0.553	0.176	0.114
A	288	0.000	0.500	1.000	0.500	0.501
T	288	0.000	0.500	1.000	0.500	0.501
STGDP	288	0.749	0.898	0.960	0.893	0.044
EDU	288	6.047	7.773	8.667	7.641	0.536
Financial	288	0.110	0.226	0.627	0.250	0.107

4.2. Correlation Analysis

In this paper, the Pearson and Spearman coefficients are used to test the correlation of each variable, and the test results are shown in Table 2. The lower left corner is the test result of the Pearson correlation coefficient, and the upper right corner is the test result of the Spearman correlation coefficient. From the results of correlation analysis, the absolute value of the correlation coefficient of the variables used in this paper is significant at the level of 1%, indicating that the correlation between the variables is strong. At the same time, the correlation coefficients between the independent variables, the dependent variables and the control variables are all within 0.2, which indicates that the multicollinearity problem in this paper is small, and the empirical regression model in this paper is reliable.

Table 2. Correlation analysis

	Y	A	T	STGDP	EDU	Financial
Y	1.000	0.198***	-0.095	-0.099*	-0.028	0.037
A	0.198***	1.000	0.000	-0.020	-0.204***	-0.076
T	-0.027	0.000	1.000	0.231***	0.136**	0.102*
STGDP	0.008	0.113*	0.145**	1.000	0.256***	-0.463***
EDU	0.004	-0.128**	0.148**	0.103*	1.000	-0.417***
Financial	-0.042	-0.097*	0.081	-0.344***	-0.637***	1.000

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4.3. Benchmarking

Table 3 reports on the impact of land rights confirmation policies on land transfer. A mixed OLS model was used to control for annual fixed effects. Among them, column (1) reports the regression results without the addition of control variables, and finds that the regression coefficient of the interaction term (AT) of land rights confirmation policy (AT) and land circulation (Y) is positive, and passes the significance test at the level of 5%, and column (2) further adds all the control variables

mentioned above, and finds that the regression coefficient of the interaction term of land rights confirmation policy (AT) and land circulation (Y) is 0.055, which also passes the significance test at the level of 5%. In summary, the above results indicate that the land right confirmation policy can significantly improve the circulation of rural land.

Table 3. Regression analysis

	(1)	(2)
	Y	Y
A	0.018	0.017
	(1.12)	(1.04)
T	0.085***	0.091***
	(6.02)	(5.83)
A×T	0.055**	0.055**
	(2.54)	(2.57)
STGDP		-0.161
		(-1.40)
EDU		-0.005
		(-0.37)
Financial		-0.095
		(-1.37)
_cons	-0.009	0.190
	(-1.09)	(1.07)
Year	Yes	Yes
N	288	288
adj. R2	0.349	0.348

Note: T statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, the same below.

4.4. Parallel Trend Test

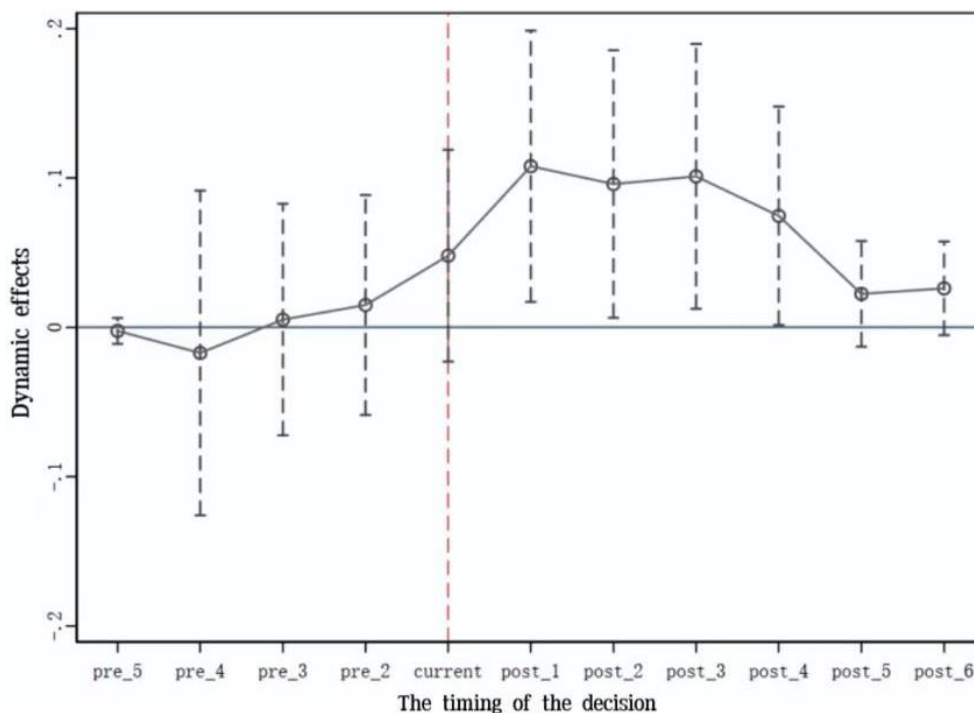


Figure 1. Parallel trend test

Before using the DID model, the parallel trend between the experimental group and the control group was tested, and the parallel trend hypothesis test of the benchmark model was carried out by using a graphical method. As can be seen from Figure 1, for each region, the rural land circulation

(Y) before the implementation of the land rights confirmation policy fluctuates around zero, and the trend change is not obvious. After the implementation of the land rights confirmation policy, the coefficient of rural land circulation (Y) was also significantly greater than 0. The above test shows that the temporal trend of rural land transfer (Y) before the implementation of the land rights confirmation policy is similar. Therefore, the data of the experimental group and the control group in this paper can meet the assumption of parallel trend, and the difference-in-difference model (DID) can be used to study the impact of rural land ownership confirmation policy on land transfer.

4.5. Placebo Test

Firstly, the regional samples were randomly selected from the sample as the sample of land rights confirmation policy impact, and secondly, the core explanatory variables were generated for regression, and the process was repeated 500 times, and the placebo test was performed on the main results of this paper. Finally, with reference to the existing research practices, the P-value plot of the regression coefficient is drawn. Since it is a randomly generated impact variable of land tenure confirmation policy, the core explanatory variable should not be significant, otherwise it is considered to have failed the placebo test. The estimation coefficient results of the land tenure policy interaction term (AT) are shown in Figure 2. As can be seen in Figure 2, the P value of the core explanatory variables that repeated 500 regressions is basically greater than 0.1, indicating that the regression coefficient of the placebo test is not significant, indicating that the placebo test has been passed. In addition, the estimated coefficient of the land tenure policy interaction term (AT) of the repeated 500 regressions ranged from -0.04 to 0.04, while the coefficient of the land tenure policy interaction term (AT) in the real baseline regression was 0.055, which was outside the two ends of the normal distribution, indicating that the main effect of the benchmark regression was not driven by other factors not observed at other levels.

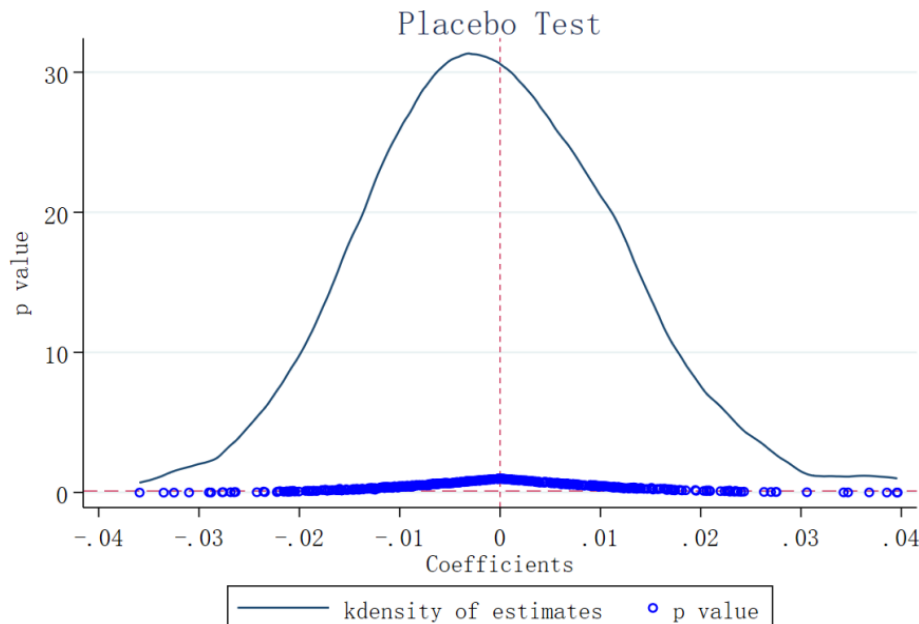


Figure 2. Placebo test

4.6. Index Sensitivity Test

Table 4 reports the results of the robustness test for substitution of the explanatory variables. Referring to the existing research, the annual growth rate of land circulation area in the first period is used to measure rural land circulation (F_Y), and the annual growth rate of land circulation area in two periods in advance is used to measure rural land circulation (F2_Y). Column (1) reports the regression results of the first period of rural land transfer, and finds that the regression coefficient of the interactive item of land rights confirmation policy (AT) and the rural land circulation in the first

period of advance (F_Y) is positive, and passes the significance test at the level of 5%, and column (2) reports the regression results of the rural land circulation in the two periods in advance, and finds that the regression coefficient of the land rights confirmation policy interaction term (AT) and the rural land circulation in the two periods in advance (F2_Y) is 0.054, and passes the significance test at the level of 10%. In summary, the above results show that the land rights confirmation policy can significantly improve rural land circulation, and the above conclusions are stable.

Table 4. Substitution of explanatory variables

	(1)	(2)
	F_Y	F2_Y
A	0.036**	0.054***
	(1.99)	(3.18)
T	-0.099***	-0.075**
	(-3.01)	(-2.40)
A×T	0.054**	0.054*
	(2.12)	(1.91)
STGDP	-0.125	-0.069
	(-0.96)	(-0.52)
EDU	0.007	0.015
	(0.48)	(0.89)
Financial	-0.095	-0.115
	(-1.29)	(-1.45)
_cons	0.251	0.171
	(1.24)	(0.80)
Year	Yes	Yes
N	264	240
adj. R ²	0.138	0.147

5. Conclusion

Conclusions of the study: According to the empirical analysis results, it is found that the land right confirmation policy can significantly improve the circulation of rural land.

Policy recommendations:

The first is to strengthen policy propaganda for peasants. Poor information is an important factor causing the stagnation of work, affected by the degree of knowledge and vision, farmers' awareness of relevant national land policies and laws and regulations still has a lot of room for improvement, it is suggested that the publicity and education for farmers should be strengthened, so that farmers can understand and learn land policies such as land rights confirmation and land circulation. Only by allowing farmers to have a more comprehensive understanding of land rights confirmation can farmers take the initiative to participate in land rights confirmation, increase farmers' willingness to participate in land circulation, and ensure the smooth progress of land circulation.

The second is to strengthen financial support for rural social welfare. In March 2021, the Ministry of Agriculture and Rural Affairs promulgated the Administrative Measures for the Circulation of Rural Land Management Rights, which further clarified the specific provisions on the review and review of land operation rights obtained by social capital through circulation. It is suggested that the financial investment should be increased in the social welfare security of farmers, such as further promulgating policies to benefit farmers in the areas of pension and medical care, to solve the worries of farmers, so that farmers can participate in the labor of the secondary and tertiary industries with confidence, and increase their willingness to participate in land circulation after land rights are confirmed.

Third, improve the rural land circulation market. It is suggested that the government should improve the service system for rural land circulation, build an information platform for land circulation, set up relevant policy consulting services, standardize the process of rural land credit,

strengthen policy support in terms of rule of law, information and finance, and cultivate a good market environment for land circulation.

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