

DOES THE POLICY OF RURAL LAND RIGHTS CONFIRMATION PROMOTE THE TRANSFER OF FARMLAND IN CHINA? *

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Land tenure security and land transfer markets are once again a topmost priority in the policy development agenda because of their expected outcomes in terms of equity and efficiency in the rural sector of China. The policy of rural land rights confirmation has been implemented since 2010 to enhance land tenure security and the transferability of farmland. However, only a few studies have been conducted on the effect of rural land rights confirmation on farmland transfer. Therefore, we use household-level survey data from 48 villages across Tianjin City and Shandong Province to explore whether rural land rights confirmation promotes the transfer of farmlands. Our empirical results show that rural land rights confirmation has significant and positive effects on the likelihood and amount of transfer-out land at the 5% significance level, but the effect on transfer-in farmland is insignificant. The results of the study have several policy implications. For instance, the agricultural comparative advantage should be improved through various agricultural subsidy policies. Moreover, the intermediary service network for farmland transfer should be established, and strengthening the non-farm employment skills and improving the non-agricultural employment market are necessary for the rural labour force.

Keywords: rural land rights confirmation, farmland transfer, land tenure security, China

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INTRODUCTION

Economic reforms initiated in the late 1970s drastically affected the development of the Chinese agricultural sector. In particular, the switch from collective farming to the household responsibility system (HRS) has resulted in an important change in the land tenure system. The implementation of this new land tenure system led to the rapid growth of agricultural productivity in the early reform years (1979–1984), which linked the income of farm households closely to their own performance (Fan 1991; Lin 1992). However, the high level of farmland fragmentation significantly complicates farming activities. Especially in recent years, farmlands have been broken into small land-ownership parcels, and they have lost their attractiveness for farming, particularly for the farmers themselves. The plots are unprofitable for owner-cultivation because of the small, often scattered, and inconveniently shaped parcels that lead to higher expenditure and lower farm productivity (del Corral et al. 2011; Latruffe – Piet 2012). To solve these problems, the Chinese government permitted land rentals in the mid-1980s. In 1993, the government allowed the extension of land use rights for another 30 years. Since then, a rural land rental market has emerged.

According to the statistics of the Ministry of Agriculture, the proportion of rural land transfer reached no more than 26% by the end of 2013. The low incidence of *land rental transactions* can be explained by the type of land tenure and other related institutions in China. First, land in rural China is owned commonly, and access to its use is guaranteed either by birth or is acquired through marriage; thus, the scope of land rental activity is inevitably reduced (Turner et al. 2001). In addition, the frequent administrative reallocations of land by the village collective, used to take into account demographic changes, demonstrated their shortcomings in adjusting social relations during and after land acquisition because of the problematic land revenue redistribution and forced land acquisitions. All of the above factors have resulted in insecure land use rights and in the decrease in incentives for farm households to engage in long-term land investment (Feng 2008). Combined, these institutional features have a constraining effect on the development of the land rental market.

To respond to this problem, the government has implemented a series of legal land tenure reforms that aim to improve the legal tenure security and transferability of farmland since 1998 (Ma et al. 2015). The government therefore provided more detailed stipulations in the Rural Land Contract Law (RLCL) of 2002 and the Property Law (PL) of 2007. In 2010, the authorities issued their first policy document (Central Document No. 1) with the aim of deepening the reform of the rural land system. In this document, they guaranteed that farmers would be granted more property rights, e.g. by accelerating the rural land rights confirmation,

and that rural land contract relations would remain unchanged in the long term. At the same time, the local governments are obliged to register and certify rural land-use rights. In addition, they are required to make the transfer of contracted land-use rights to ensure that the transformation policy can be implemented correctly and in an orderly fashion. In 2013 and 2014, the central government even emphasised the acceleration of the afore-mentioned work. In other words, the government seeks to promote the transfer of farmland by strengthening the policy of rural land rights confirmation (i.e. registration, titling, and certification of rural land rights). However, the real effect of the policy is still unknown, and few studies have focused on this issue.

Secure and easily transferable rights to land have long been identified as a key element in bringing high levels of investment and easy access to credit, in facilitating the reallocation of production factors to maximise allocative efficiency in resource use, and in enabling economic diversification and growth (Deininger – Jin 2006). In many instances, tenure security correlates with participation in the land rental market (Gebreselassie 2006; Ghebru – Holden 2008). In fact, empirical analysis suggests that insecure rights can reduce the level of activity in land rental markets and simultaneously induce market segmentation by limiting transactions to a close circle of relatives in which social sanctions can be applied to ensure the recovery of land (Deininger – Jin 2005; Wang et al. 2015).

Land registration and titling programmes have been implemented in many countries to grant land rights to farmers. In many parts of the world, these land registration and titling programmes have led to enhanced tenure security and increased economic gains. In the Dominican Republic, for example, simulations suggested that increasing security of tenure could increase the total area rented by the poor by 63% and that this would increase security dramatically affecting the lives of the poor (Macours et al. 2004). Similarly, in Nicaragua, producers who had titles were significantly more likely to rent out their land, thus providing an opportunity for more effective producers to increase their cultivated areas (Deininger et al. 2003). Furthermore, additional findings indicate that rural land security conditions produce desirable social outcomes, such as the performance of local institutions (Deininger et al. 2003; Deininger – Jin 2006) and even of the state (Banerjee – Iyer 2005).

In Africa, land registration and titling programmes have been implemented since World War II to improve tenure security. However, these land registration and titling initiatives had relatively disappointing results. The failure of these programmes to enhance tenure security is largely attributed to their unsuccessful design and implementation (e.g. Deininger et al. 2003; Crewett – Korf 2008). Crewett – Korf (2008) argued that the structure of the existing land tenure systems in Ethiopia is largely characterised by top-down approaches that do not consider

specific local needs. The failure of titling programmes in Africa is well documented. In most cases, these programmes ignored the premise that they had been proven effective (e.g. Peters 2004; Shipton 2009). In particular, many programmes were implemented without examining whether the landholders who were supposed to benefit from the titling programmes considered the titles or deeds useful and whether they were likely to register transactions after the first registration.

A large number of studies have suggested that renting out land may be considered a signal to take land away from them because of insecure land rights (Yang 1997; Holden – Yohannes 2002), or that tenants may not give the land back upon the expiry of the lease contract. Furthermore, the level of participation in land markets may be sub-optimal. Tenure insecurity of rural land under the HRS in China is stimulated by the risk of land expropriation for urban expansion and infrastructure development (Tao – Xu 2007). In addition to tenure insecurity, land transfer markets continue to be thin. Land transfers that do not violate the contract that farmers signed with the village collective are technically permitted and informed by the village leader. Although land rentals increased after the tenure reforms in 2002, Deininger – Jin (2009) found that contracts remained informal and unwritten, and that these contracts were frequently made with relatives.

As shown above, land registration and titling programmes have been implemented continuously in developing countries all over the world. However, to our knowledge, only a few studies have provided empirical estimates on the extent of the influence of rural land rights confirmation on farmland transfer in China. The objective of this study is to estimate the effect of rural land rights confirmation on farmland transfer in rural China. Particularly, we test whether households will transfer in/out more land if they are given the rural land contract management certificate (RLCMC).

This study is structured as follows. Section 2 describes the history of land reform in rural China and reviews the rural land rights confirmation programme. Section 3 presents the data and the method used. Section 4 discusses the econometric results of the regression model. Section 5 concludes the study by putting the results into context and drawing policy implications.

RURAL LAND REFORM AND LAND RIGHTS CONFIRMATION

Land policies and interventions that directly or indirectly affect the security of property rights to rural land have been a key issue throughout China's history. Before the communist revolution, most Chinese farmers were poor tenants or owners of small plots. After the communist government took over, it confiscated the large holdings of property owners and distributed land rights to households

on an egalitarian basis (Prosterman et al. 1990). In the 1950s, a policy of collectivisation that required farmers to surrender lands to collectives was adopted and resulted in disastrous consequences of output and rural welfare, in which millions of rural dwellers perished from 1958 to 1960 (Putterman – Skillman 1993; Yao 1999; Lin – Yang 2000).

To solve these problems and improve productivity, the HRS was introduced in the late 1970s, while the communes were dissolved in 1984. The HRS aims to extend land-use rights and authorise individual households with income rights. Under the HRS, rural land ownerships belong to a village collective, and land use rights are allocated among village households. Rural households have held individual rights to use the land since the 1980s, although these rights are incomplete. Liu et al. (1998) reviewed four aspects of land rights that could vary among Chinese villages: residual income rights, unencumbered use rights, rights to secure possession, and transfer rights. As a result of the gradual strengthening of overall property rights since the 1980s, residual income rights and unencumbered use rights are now universal.

In contrast to the situation of income rights and use rights, households in many areas in China have been reported to have poor land tenure security rights. Land tenure security under the HRS is determined primarily by two factors. The first is the duration of the lease of land to a household. In the early stages of the HRS, land contract period was only one year or two years. However, officials realised that such a short contract period offered households poor land tenure security and discouraged them from making land-improving investments. Therefore, land contract terms under the HRS were extended to 15 years or more (Putterman 1993; Zhang – Makeham 1992).

The second factor influencing land tenure security under the HRS is the periodic reallocation of land by village authorities. Lengthening contract periods did not always improve the tenure security of rural households as village leaders in many Chinese villages reallocated some or even all of the land using their administrative power. The allocation of land based on egalitarian principles serves to grant all households in a village collective equal access to vital (equitable) land resources that are needed to provide a livelihood. These reassignments often occurred despite the existence of long-term use right contracts. Studies have shown that two-thirds of Chinese villages reallocated land through administrative methods, and that this often occurred in the middle of land contract times (He 1995; Brandt et al. 2005). Therefore, the existence of long-term land contracts is usually an insufficient condition to ensure tenure security for agricultural households because of administrative reallocations within the period of the HRS contracts. In 1984, the government adopted Rural Work Document No. 1, which states that land assignments under the HRS should last for at least 15 years. Thus,

village leaders should not reassign lands during the contract period. However, based on egalitarian principles that serve to grant all households in a village collective equal access to vital (equitable) land resources that are needed to provide a livelihood, rural land must be reassigned. Furthermore, the document encouraged farmers to transfer land use rights through decentralised land markets and discouraged the use of administrative land reallocations (Cheng – Tsang 1995). The first Land Administration Law (LAL) was adopted in 1986, and it formally introduced the basis of the HRS. Under the LAL, the rights of farmers to lands were supposedly secure and extended. However, the original aim of LAL was not achieved because of the short lease period and the periodic reallocations of land by village authorities (Krusekopf 2002).

In 1994, the Chinese Communist Party's Central Committee adopted a resolution calling for land use contracts to be extended for 30 years when the original 15-year contracts expired, and this resolution was supported by the law through the revision of LAL in 1998. The stipulations in the LAL revision state that land certificates should be issued to protect land use rights, that acceptance by two-thirds of representatives of villagers and approval of higher-level governments are needed for land reallocation within villages, and that land transfers to individuals and units outside the village are obtained with the approval of two-thirds of the congress or delegates of villagers (Ho 2001).

In order to strengthen further the rights of farmers to rural land, the Rural Land Contracting Law (RLCL) was adopted by the Party's Standing Committee in August 2002 and was made effective in March 2003. The RLCL insists that these contracts be written and include, in addition to the names of the parties involved, specific details on location, area, quality, and use of the contracted land, the rights and obligations of both parties, the contract term, and the liabilities in case of contract violation. To prevent the alteration of contract terms or the unilateral "cancellation" by village leaders if there is need for land (e.g. for industrial projects), contracts are supposed to be registered by the county or provincial government that maintains copies that can be called upon in case of loss of the original contract or in cases of dispute. The RLCL enables land use rights to be exchanged and to be leased, transferred, and assigned to others to a greater extent than was possible before. In the case of transfers that leave the original contracting relationship unchanged, the collective has to be notified, but no approval is needed. Transactions with a duration longer than one year require a written agreement and can be registered by the village on a voluntary basis. In the case of reassignment that terminates the original contracting relationship, approval by the collective landowner is required.

The Property Law (PL) of 2007 further increased legal land tenure security in rural (and urban) areas. Land reallocations within villages are now allowed only

in case of a natural disaster or other special circumstances specified by the RLCL of 2002. PL implicitly grants farmers perpetual rights, and it states that farmers should retain and inherit their rights according to relevant rules when the 30-year period has passed. Further legal support of the interests of farmers is provided by the Mediation and Arbitration of Rural Land Contract Disputes Law, which was adopted in 2009, and this law sets out principles related to the use of mediation or arbitration to settle land disputes (Ma et al. 2015).

In Central Document No. 1 of 2010, the central state decreed in unusually powerful wording that titles be issued to “all rural collective economic organisations with ownership rights within 3 years”. Toward the deadline, Document No. 1 of 2013 stipulated that the registration and certification for rural land contract management rights should be completed within five years, and further implementation of this work was mentioned in the Document No. 1 of 2014 of the central government.

A CONCEPTUAL FRAMEWORK

It would be useful to start with a conceptual framework for the relationship between rural land rights confirmation and the transfer of farmland. Such a framework was first developed in the context of a study on rural Thailand (Yongyuth et al. 1988). In his conceptual model linking land titles and productivity in Thai agriculture, Yongyuth hypothesised that there are at least three important economic relationships to consider: (1) that title can be used as collateral to improve access to credit for agricultural investment, (2) that title could increase security of tenure for farmers and enhance their willingness to make medium-term to long-term investments on their land, and (3) that title may stimulate land markets that will facilitate the transfer of land resources to the more productive farmers. In Thailand, different institutions provide different types of land documents reflecting different levels of tenure security. Three levels of land tenure security, namely secure, temporary and insecure, were classified from different types of land titles or certificates as follows: (1) Secure land tenure refers to the possession of private land with land titles issued by the Department of Lands, including title deed. The landowners who hold this certificate possess unrestricted rights of sale, transfer, and inheritance. (2) Temporary land tenure refers to the possession of land with other forms of land documents issued by respective departments. (3) Insecure land tenure refers to the possession of land without recognised documents or with only tax payment. These pathways have subsequently been used by economists to test for linkages between tenure security, investment, and productivity as well as the impact of land markets and other policy instruments.

We assumed that farmers have more secure land rights by the policy of rural land rights confirmation. Moreover, higher tenure security was seen as critical for more active rental markets and a vibrant off-farm economy in China (Jin – Deininger 2009). This conceptual framework of rural land rights confirmation-farm-land transfer is presented in *Figure 1*. Different type of farmers, such as farmers good at farming and farmers who have worked in the non-agricultural sector, can all benefit from the policy of rural land rights confirmation. On the one hand, land rights confirmation enhanced the land tenure security; the majority of farmers in our survey samples in China believed that land rights confirmation reduced the likelihood of a land dispute. More secure land rights and the presence of land rights confirmation are often associated with an increased likelihood of making certain types of investment, for example, tree planting, fencing, and manuring, and it also raised the participation of farmers in land rental markets. Deininger – Jin (2006) found that more private transfer rights have a strong positive effect on investment and terracing in countrywide sample in Ethiopia. On the other hand, before the implementation of rural land rights confirmation, farmers who worked off-farm were afraid of renting out their rural land because doing so could be perceived as a signal that the land was no longer needed and could be administratively reallocated to other households. With the implementation of rural land rights confirmation, formal property rights may serve as collateral, thereby allowing a household to access credit markets, which is very important for farmers who worked off-farm.

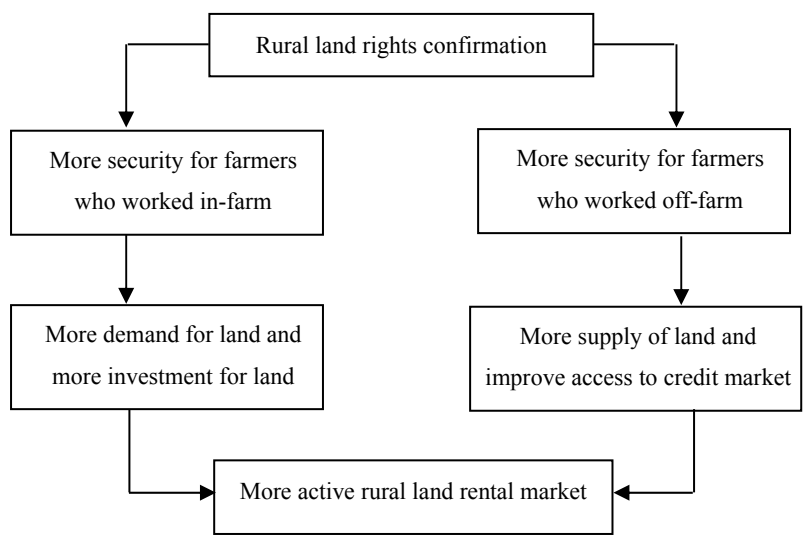


Figure 1. Rural land rights confirmation and farmland transfer: a conceptual framework

METHODOLOGY AND DATA

Model specification and variables

We estimate the following OLS econometric model and empirically test whether the policy of rural land rights confirmation promotes the transfer of farmland in rural China by applying the household survey data. The structure of our econometric model is

$$Y_i = c + \alpha_i LC_i + \beta_i X_i + \mu_i. \quad (1)$$

Formula (1) is the basic model reflecting the effect of rural land rights confirmation on farmland transfer.

The dependent variable Y_i is the transfer rate of farmland for the household (including transfer in and transfer out) (unit: %). The household that transfers in or out farmland at least once in 2010–2014 is defined as the transfer-in or transfer-out household, respectively. If the farmland transfer of a household did not occur in 2010–2014, the household is excluded from the sample household. According to the research purpose, the transfer rate of farmland for household is divided into the transfer rate of farmland for transfer-in household and transfer-out household. The transfer rate of farmland for transfer-in household = the transfer-in farmland area / (farmland area owned by the transfer-in household at the beginning of the year + the transfer-in farmland area). The transfer rate of farmland for transfer-out household = the transfer-out farmland area / farmland area owned by the transfer-out household at the beginning of the year. Theoretically, a household may transfer out farmland first in a particular year and then transfer in farmland in subsequent years. However, this kind of household does not exist in our sample.

The variable LC_i represents the indicator of land rights confirmation that reflects households that can hold RLCMC or those households that cannot. The group of variables X_i denotes the other control variables except LC_i . α_i and β_i are the coefficients of the variables LC_i and X_i , respectively. c is the constant, and μ_i is the error item.

We select 8 control variables by referring to existing research (Deininger – Jin 2005; Feng et al. 2010; Mullan et al. 2011; Sitko et al. 2014). These control variables are the individual and household characteristic variables, such as sex of the household head (SH), age of the household head (AH), education of the household head (EH), per capita farmland endowment (PCFE), ratio of agricultural income in family (RAIF), ratio of off-farm labour in family (ROLF), number of dependents (NP), and dummy variable. The detailed information of control variables is as follows.

As for the households which rent in land, with the growth of age of the household heads and the increase of agricultural experience, they may be inclined to rent in rural land, but when reaching a certain age, with the decline of physical fitness and energy, they may prefer to rent in less rural land. Taking the age of sample household heads into account, they are generally older, the average age is 49.36 years (*Table 1*), thus the impact of age of rent-in household heads on farmland transfer in is expected to be negative. As for the households which rent out land, with the increase of the age of the household heads and the increase of non-agricultural experience, they may be inclined to rent out rural land, but when a certain age is reached, with the decline of physical fitness and energy, the income and opportunity of engaging in non-agricultural employment may be reduced, and they may not prefer to rent out rural land. Therefore, the impact of age of rent-out household heads on farmland transfer is expected to be uncertain. The impact of sex and education level of household heads on farmland transfer is also expected to be uncertain. Male and well-educated household heads may have more opportunities to engage in non-agricultural employment, and thus tend

Table 1. Descriptive statistics of the variables

Variable	Definition	Land transfer-in household		Land transfer-out household	
		Mean	Stan.dev.	Mean	Stan.dev.
Dependent variables					
Transfer rate of farmland	Transfer rate of farmland for households that transfer in farmland	0.58	0.24		
	Transfer rate of farmland for households that transfer out farmland			0.67	0.32
Independent variables					
SH	Sex of household head (male=1, female = 0)	0.726	0.482	0.793	0.514
AH	Age of household head	49.36	12.67	46.72	11.43
EH	Education level of household head	6.24	2.58	6.57	2.89
LC	Whether to hold the RLCMC or not (1 = yes, 0 = no)	0.67	0.62	0.73	0.57
PCFE	Per capita farmland endowment (mu)	1.26	0.57	1.18	0.46
RAIF	Ratio of agricultural income in family	0.73	0.49	0.34	0.17
ROLF	Ratio of off-farm labour in family	0.27	0.30	0.53	0.38
NP	Number of dependents in family	2.04	1.32	1.98	1.06
Provincial dummy	1= Tianjin City; 0= Shandong Province	0.51	0.26	0.52	0.19

Notes: 1 hectare = 15 mu.
Source: Authors' calculation based on household survey data.

to rent out rural land, but at the same time, they may be more likely to accept the new agricultural technology, and thus rent in rural land.

Household characteristic variables include per capita farmland endowment, ratio of agricultural income in family, ratio of off-farm labour in family, and number of dependents. As for the households with adequate owned farmland, this means that the gap from the optimal operation scale of agricultural land is smaller. These kinds of households are more likely to rent in rural land, and vice versa. The higher the ratio of off-farm labour in a family, the more farmers tend to rent out rural land because the family income is mainly dependent on the source of non-farm income. Households with a higher ratio of agricultural income in the family may be inclined to rent in rural land. As for the number of dependents, due to the number of the non-labour force, the impact of the number of dependents on farmland transfer is expected to be uncertain.

The dummy variables for Tianjin City (the sample areas of which are Xiqing and Jinghai) and Shandong Province (the sample areas of which are Linqing and Guanxian) are included to capture the variation in other factors that systematically differ between the two provinces. The summary statistics for the variables is provided in *Table 1*.

Data and descriptive statistics

We obtained the data from the rural household surveys conducted in Tianjin City and Shandong Province both in East China. We selected two counties from each province, three townships from each county, four villages from each township, and 20 households in 48 villages from each village. Altogether, we interviewed representatives of 960 households that were randomly selected from the list of the households provided by the village committees. The interviews were conducted in the selected villages during the Chinese Spring Festival in 2015 as part of our programme supported by the National Natural Science Foundation of China.¹

The questionnaire included sections on basic households and individual characteristics and information about the rural land rights certificates. Several sections of the household survey were designed to collect information about farmland transfer and rural land rights confirmation. All of the households were asked

¹ A common problem in the rural household surveys is the absence of migrant household members who formally belong to the household according to their rural hukou status. At the same time, they are difficult to interview directly because they work away from home. This problem was minimised in this study as all interviews were conducted during the Spring Festival period.

Table 2. Distribution of sampled households

Province	County	Land transfer-in household		Land transfer-out household		Total	
		Number	%	Number	%	Number	%
Tianjin City	Xiqing	112	26.67	110	25.35	222	26.00
	Jinghai	102	24.28	114	26.27	216	25.29
Shandong Province	Linqing	102	24.28	107	24.65	209	24.47
	Guanxian	104	24.77	103	23.73	207	24.24
Total		420	100.00	434	100.00	854	100.00

Source: Authors’ calculation based on household survey data.

whether there were any farmland transfers in the village in the previous five years and were divided into two categories, namely, transfer in and transfer out. Another section of the survey focused on rural land rights confirmation. The households were asked, for instance, if they had rural land certificates/contracts and when they had received these documents. To ensure the high quality of the data collected, we removed observations with incomplete information and/or incomplete interviews. Our study obtained a total of 854 household questionnaires. The distribution of households is provided in *Table 2*.

RESULTS

To investigate more thoroughly the effect of rural land rights confirmation on farmland transfer, we used a multivariable linear regression model. The models were estimated using Eviews 5.0. The results of the method of ordinary least squares estimation are presented in *Table 3*, which shows that four variables have a significant effect on transfer-in land, and six other variables have a significant effect on transfer-out land.

With regard to the effect of rural land rights confirmation on farmland transfer, two conclusions can be drawn.

(1) For the households that transfer in land, rural land rights confirmation has no significant effect on the likelihood and amount of transfer-in land, which is inconsistent with the findings of Feng (2006) and Ma (2013). The empirical results of the two earlier studies indicated that a more perfect land contract would encourage households to produce, manage, and simultaneously reduce the execution cost of the contract of the rural land transfer. Therefore, giving the certificate of rural land contract management to farmers will urge them to increase the likelihood and size of transfer-in land. In our study, the possible reasons for the findings have two aspects. First, as indicated by our field investigation, the

Table 3. Estimation results of the effect of rural land rights confirmation on farmland transfer

<i>Variable</i>	Land transfer-in household		Land transfer-out household	
	Coef.	t-statistic	Coef.	t-statistic
SH	-0.027	-1.372	-0.018	-1.251
AH	-0.025**	-3.726	0.019**	3.405
EH	-0.036*	2.014	0.044*	2.273
LC	0.030	1.207	0.028**	2.946
PCFE	0.021***	4.824	-0.016**	-3.513
RAIF	0.004	1.355	-0.007*	-2.109
ROLF	-0.016	-1.526	0.013**	3.757
NP	0.022**	3.811	-0.026	-1.390
Provincial dummy	0.012	1.076	0.008	1.428
Constant	0.837***	4.182	0.918***	5.633
Log likelihood	172.835		124.064	
Adjusted R-squared	0.982		0.975	
No. of observations	420		434	

Notes: * Denotes the 10%, ** the 5%, and *** the 1% significance level, respectively.

comparative advantage of agriculture is relatively low. Thus, if households that demand the transfer in of farmland are still engaged in food agriculture, they will not bear the transaction costs of farmland transfer. Second, the transaction costs of farmland transfers are relatively high. Existing literature has shown this circumstance (Jin – Deininger 2009; Kimura et al. 2011). The costs are mainly from three aspects based on our survey: the search cost (i.e. the cost for the supply and demand sides to search each other's information), the negotiation cost, and the supervision cost for the execution of the farmland transfer contract.

(2) For households that transfer out land, the empirical results indicate that rural land rights confirmation has a significant and positive effect on the likelihood and amount of transfer-out land. That is, more secure land rights are associated with increased farmland transfer out. The plausible explanation for this finding is that the households that transferred out land have entered the non-agricultural sector. Wage income is the main source of their family, and thus they pay more attention to the property income that comes from the farmland assets and do not intend to easily transfer out land. However, the confirmation of rural land rights, as an effective instrument to improve the security of land tenure, can reduce uncertainties in the process of farmland transfer out and enhance the confidence of the household to obtain the property income from the transferred-out land. This conclusion is in accordance with the findings of Deininger et al. (2003) and Holden et al. (2007). Their empirical results showed that the improvement of land tenure security could decrease the transaction cost of farmland transfer, reduce the risk of losing the transfer-out land for households that transfer out land, and

then encourage them to transfer out more farmland. Furthermore, the findings of Wang et al. (2015) indicated that possession of land right certificates and fewer major land reallocations encouraged households to engage in land renting to non-family members and that the effects of land right certificates were stronger in 2008 than in 2000. However, our finding is inconsistent with Lang et al. (2014) whose empirical results showed that secure land tenure could stimulate the enthusiasm of farmers for land investment, strengthen the “property endowment effect” of farmland, and then reduce the amount of transfer-out farmland.

With regard to the other control variables in *Table 3*, the age of the household head has a negative and significant effect on the transfer rate of farmland for transfer-in households, but it has a positive and significant effect on the transfer rate for transfer-out households. The older the transfer-in households are, the lower the transfer rate of farmland because the vigour and the age of the household head make conducting large-scale farmland management difficult. However, for the transfer-out households, as household heads grow older, their labour abilities gradually weaken. Thus, the family income comes mainly from the children of the household heads, and the likelihood of transferring-out more land is higher for them. This finding is consistent with that of Ma et al. (2015). The coefficient of education of household heads is significant at the 10% level in the two models, and thus the signs of the two estimated coefficients are opposite. *Table 3* shows that the households with a higher level of education are likely to transfer out more land, whereas the opposite is true for the households that transfer in land. One implication is that the opportunity to engage in non-farm activities increases with education, and therefore households transfer out land to substitute their time away from agricultural production. This finding corroborates those of Deininger et al. (2003), Teklu – Lemi (2004), and Swinnen et al. (2006), but refutes those of Tikabo – Holden (2004) and Masterson (2007), who noted that the education of farmers had either a negative effect on land transfer out or a positive effect on land transfer in, implying imperfection in the market for human capital. By contrast, Vranken – Swinnen (2006) noted that education significantly reduced the demand for transfer-in land in Hungary; this finding was also observed in our study.

Among the household characteristic variables, the coefficient of per capita farmland endowment is significant at the 1% and 5% level in the two models. However, the sign of the coefficient estimation is opposite, indicating that a cyclic cumulative effect exists on farmland transfer. That is, households rich in initial per capita farmland endowment have a stronger desire to transfer in more farmland, while households with lower initial farmland endowment are likely to transfer out farmland. Several reasons can explain this finding. First, scale management is unfavourable for households with inadequate owned farmland. This

kind of household has restricted agricultural productivity, but increased costs of agricultural investment. Second, the ratio of agricultural income in a family has significant and negative effects on the transfer-out model, implying that households with a high share of agricultural income are unlikely to transfer out land to others. This finding corroborates the study of Kung (2002), who noted that households with active participation in the off-farm labour market transfer out more land in China. The ratio of off-farm labour in a family has a positive and significant effect on the transfer-out model, whereas, the number of dependents in a family has a positive and significant effect on the transfer-in model.

CONCLUSION

This study examines the effects of rural land confirmation on the transfer of farmland from the perspective of transfer-in and transfer-out households. Data from rural household surveys conducted in Tianjin City and in the northwest of Shandong Province in 2015. Our findings show that rural land rights confirmation has a significant and positive effect on the likelihood and amount of transfer-out land at the 5% significance level, but its effect on transfer-in land is insignificant.

Several implications for policy can be drawn from the above. First, in order to strengthen the farmers' expectations of land transfer, the structure and functions of rural land rights should be further improved, and land contract rights and land management rights should be clearly defined. In addition, the policy should aim at developing land contractual management rights mortgage and loan, as this would break the restriction in which the land in rural areas could not be used as collateral.

Second, to improve agricultural comparative advantages, government policy should pay more attention to further increasing the intensity of agricultural subsidies for farmland scale management. The agricultural subsidies should be paid to practical agricultural land managers such as grain growers, and it should be decoupled from the rural land contractual relationship.

Finally, to strengthen non-agricultural employment skills, especially for households that transfer out land, multiple levels of a vocational skills training system for farmers should be established. Through the training system, necessary conditions and effective space for the transfer of farmland can be created. The key principle is to reduce the reliance of farmers on land as a source of social security. Basic social services for households that engage in non-agricultural employment in urban areas should be established and let *hukou* system return to the function of household registration and statistics. Furthermore, medical insurance and other social insurance systems should be expanded and improved in rural areas.

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