Why does the short-term contract dominate in China's rural land transfer market?

Y. Zhang[1]; W. Liu[2]; J. Cai[3]

1: AGRICULTURAL INFORMATION INSTITUE, CHINESE ACADEMY OF AGRICULTURAL ACIENCES, INTERNATIONAL DEPARTMENT, China, 2: INSTITUE OF AGRICULTURAL ECONOMY AND DEVELOPMENT, CHINESE ACADEMY OF AGRICULTURAL SCIENCES, RURAL DEVELOPMENT, China, 3: School of Econ

Corresponding author email: liuwenyong@caas.cn

Abstract:

There is a paradox in rural land transfer in China: it is taken for granted that the preference is for long-term tenancy, which may result in long-term investment and more thorough conservation practices; but in reality, short-term tenancy – that is, usually one year or less – dominates. By building a theory model and undertaking binary logistic analysis of survey data, we discover two fundamental reasons for the dominance of short-term tenancies that help explain this paradox: (1) owing to unstable land ownership, the high relative income per capita between non-agricultural and agricultural sectors and the close relationship between lessors and lessees, the transaction costs of leasing land are rather high, meaning that long-term leases are a better choice for lessors while short-term leases favor lessees; (2) these same three factors mean that the Chinese land lease market is a buyer's market – that is, one in which the lessee has the upper hand – so it is the preference of the lessee that determines the nature of the market as a whole.

Acknowledegment: This research is supported by Institue of Agricultural Economy and Development, Chiese Academy of Agricultural Sciences through Innovation project. We also thank Professor Zhong Tang for his valueble comments for this paper.

JEL Codes: Q12, C12

Why does the short-term contract dominate in China's rural land transfer market?

1. Introduction

Rural land transfer in China means that a rural land rental market exists in that country. Because the total area of such land in China is vast but sparsely populated, the main issues that impact negatively on China's agricultural economy and food security are invariably the small average area of rural land per farmer and inefficient land utilization (Liu and Zhang, 2013). Rural land transfer is considered a means of resolving these issues (that is, increasing the average size of farms and improving efficiency) and thereby developing the domestic agricultural economy. Thus, over the past 10 years, the Chinese government has implemented a series of policies promoting the development of rural land transfer, including the Rural Land Contracting Law of 2003 and so on. According to a report by the Chinese Ministry of Agriculture, the total area of rural land transferred in 2012 was 18 million ha, which accounts for 21.5% of all rural land in the country. Chinese government believes that the number of rural land transfers will increase in the coming years, which means that more and more farmers will become involved in the rural land transfer market and the scale of rural land transfer will increase.

With a view to finding ways to accelerate the process of rural land transfer in China, a growing number of scholars are focusing on the factors affecting that process. Most think that the length of lease is the key factor in rural land transfer because it is considered to have a major positive effect on the agricultural economy and food security. Crawford suggests that the long-term contract is preferable to its short-term counterpart because of asset specificity – that is, long-term contracts have more advantages in specificity investment (Crawford, 1988). Feder and Noronha explain that land efficiency requires individual land rights to be recognized in a way that provides sufficient security – for example, through a long-term lease (Feder and Noronha, 1987). Most scholars believe that long-term leases have at least two advantages: first, they provide greater stability for rural land lessees, which encourages long-term investment into such land (Schutter, 2009; Kong, 2009; Xu, 2009; Gao et al., 2011); and second, they can promote more thorough conservation practices (Cox, 2010; Yu et al., 2003). In other words, the long-term lease is the better option for maximizing the benefits of farming. However, in reality farmers tend to prefer short-term leases. In some cases, the length of the tenancy is left open at the time of concluding the contract, while in others there is no mention whatsoever of duration. The majority of contracts that do specify the length of the tenancy are for one-year leases. As noted above, short-term leases discourage agricultural inputs and increase uncertainty for both the lessor and the lessee (Hu, 1997). Thus, this raises the following question: why do farmers prefer short-term leases when they are aware that long-term ones yield more benefits?

This paper analyses the fundamental paradox of rural land transfer in China. We use Williamson's transaction cost theory to construct a theory model to show how the lessor and lessee's preference with regard to the length of lease is determined by the transaction cost; and we also use the binary logistic equation to do regression to test the theory model. Furthermore, we make use of non-Walrasian equilibrium theory to analysis how the lessee's preference is the key factor determining the nature of the rural land transfer market.

Following this first, introductory section, the paper is organized into another six sections. Section 2 provides basic information on China's rural land lease system. In Section 3 we construct a theory model to show how lessors and lessees make preferences with regard to the length of lease on the basis of transaction cost. Section 4 presents the

data, variables and model that we have used. Section 5 includes some of the results from the econometric analysis undertaken in Section 3 and explains why lessors prefer long-term leases and lessees short-term ones. Section 6 explains further why lessees play the dominant role in deciding the length of lease (which, in itself, is the reason why there are more short-term leases in China than long-term ones). Finally, we make our conclusions in Section 7.

2. Rural land lease market in China

With a view to helping improve the efficiency of land use with a view to securing food supply, researchers have held lively discussions on the relationship between rural land transfer and the efficient use of such land. Most scholars suggest that the former has a positive effect on the latter. First, rural land transfer leads to an increase in the average area of land farmed: Tan et al. argue that land rental markets reduce land fragmentation (Tan et al., 2006; Zhao and Tang, 2008). Second, rural land transfer can equalize marginal product because the rental market can turn land from low productivity to high productivity (Ciaian and Swinnen, 2006). Li, Zhao and Xin identify the following trends in China's rural land transfer market: an increasing rate of transactions, a growing number of forms of transaction and an increasing number of types of participant (Li et al., 2009). Meanwhile, since the agricultural tax was revoked and pro-agricultural policies implemented by China's central government, farmers have seen their revenues increase and have adopted a more rational approach to rural land transfer.

Because of the significance of rural land transfer for Chinese agriculture, it has become popular to discuss which factors are affecting such transactions. Pei, Xie and Zhang showed that in hilly areas there is a strong willingness to rent because of low population density and limited farming income (Pei et al., 2011). Deininger and Jin demonstrated that rural land transfers between private parties are likely to increase because of higher levels of out-migration and improved education (Deininger and Jin, 2005). Jin and Deininger then argued that household wealth and access to non-agricultural employment opportunities have a positive impact on the supply of land to rental markets, while transaction costs due to local regulations have a negative impact (Jin and Deininger, 2009). They also suggest that families with a relatively large number of migrant workers[1] tend to rent out land and hence this is one of the main reasons for rural land transfer.

The length of lease is another key factor. Some researchers who focus on this aspect of rural land transfer suggest that a long-term lease is better for farmers than a short-term one. However, in fact, most rural land transfers provide for short-term leases. Chen and Nie studied rural land lease in Fujian and Heilongjiang provinces and showed that, although a relatively large rural land lease market exists, short-term leases and non-standard contracts dominate (Chen and Nie, 2006）. Xu and Kong found that many rural land transfer contracts provide for one-year leases or do not stipulate the length of lease; in the case of the latter, the lease tends to be for about one year. Thus, a large number of rural land transfers involve short-term leases (Xu and Kong, 2010). Jiang and Xu report that almost all rural land leases are very short and many contracts are nonstandard in a large number of places in China. The length of lease is usually one to two years and in some cases just half a year (Jiang and Xu, 2014).

At the same time, unlike the domestic leasing market in general, China's rural land transfer market is characterized by land ownership instability (Yu et al., 2003; Zhong and Ji, 2009; Feng et al., 2013 and Tang, 2015), the high relative income per capita between non-agricultural and agricultural sectors (Lin, 2004; Chen and Lin, 2010; and Zhang, 2011) and land transfers based on close relationships (Xu, 2010; and Department of Rural Affairs,

[1] Rural workers frequently move to urban areas to take up temporary jobs.

National Bureau of Statistics of China and Research Team of the Si Chuan Survey Office, 2014), among other things. To varying degrees, these factors have an impact on the level of opportunistic behavior among lessors and lessees, the level of uncertainty, asset specificity and the transaction rate at which leases are signed and thereby affect the transaction costs of signing a lease. Consequently, the lessor and lessee's preference with regard to the lease and the contractual arrangement in general will be aimed at minimizing the transaction cost under certain conditions.

3. Theory: Transaction cost and the preferred length of lease

Below we outline a theory model based on Williamson's transaction cost theory. Although the analytical method and research focus of this theory have been questioned and criticized by many scholars (Hellwig, 1988; Winter, 1991), it cannot be denied that the concept of transaction cost has helped determine the development of economic theories (especially institutional economics) over the last half century. Moreover, it is an effective instrument with which economists can analyze systems, contracts and organizations. For these reasons, we use Williamson's transaction cost theory to seek to explain why short-term leases dominate the rural land transfer market in China.

According to Williamson's theory, unreasonable results will be obtained if two organizations, systems or contracts are compared without considering the transaction cost (Williamson, 1979). In other words, if the expected revenues of two leases are established, the transaction cost (TC) will be the key factor that influences the preference with regard to the lease (P), while the transaction cost itself will be determined by the human factor and the transaction factor. The human factor refers to opportunistic behavior resulting from human bounded rationality (o); the transaction factor refers to uncertainty (u), asset specificity (r), the transaction rate (t) and so forth (Williamson, 1985). The relationship between these factors is reflected in the following formula:

$$TC = C(o, u, r, t, \varepsilon); C_1 > 0, C_2 > 0, C_3 > 0, C_4 > 0 \qquad (1)$$

whereby ε stands for other factors.

3.1 *Lessors' preference with regard to lease length*

First, land ownership stability (s) affects the level of uncertainty associated with signing a lease, as the more stable the land ownership, the less uncertainty, and vice versa. Therefore:

$$u = u(s, \varepsilon); u_1 < 0 \qquad (2)$$

So when land ownership is unstable, the extent to which it influences the level of uncertainty will be determined by the length of lease. Land ownership instability means greater uncertainty. If a long-term lease is signed under such conditions, the level of uncertainty for the lessor will be reduced to a certain extent because they can transfer this uncertainty to lessee. Thus, when land ownership is unstable:

$$u_{long} < u_{short} \qquad (3a)$$

By contrast, when land ownership is stable, the extent to which it determines the level of uncertainty will not be significantly affected by the length of lease, as the lessor faces a low level of uncertainty and has no need to pass on that uncertainty to lessee by signing a long-term contract. Thus, when land ownership is stable:

$$u_{long} \cong u_{short} = 0 \quad (3b)$$

Second, the relative income per capita between non-agricultural and agricultural sectors (g) influences the asset specificity of lease signing (here 'asset specificity' refers to the lessor's human capital specificity in agricultural production). This is because when a lessor decides not to rent out his/her land, which means he/she invests his/her human capital into agriculture, and this lessor would lose the opportunity to get income from non-agriculture. So the higher the relative income between non-agricultural and agricultural sectors, the greater the loss of the lessor's human capital specificity in agricultural production, and vice versa. Therefore:

$$r = \mathrm{r}(g, \varepsilon); r_1 > 0 \quad (4)$$

So when the relative income per capita between non-agricultural and agricultural sectors is very high, its influence on asset specificity will be affected by the length of lease. A high relative income means strong asset specificity. If a long-term contract is signed under such conditions, the loss of the lessor's human capital specificity in agricultural production may be reduced. Thus, when there is a high relative income between non-agricultural and agricultural sectors:

$$r_{long} < r_{short} \quad (5a)$$

By contrast, when the relative income between non-agricultural and agricultural sectors is low, its influence on asset specificity will not be significantly affected by the length of lease. This is because the loss of the lessor's human capital specificity in agricultural production is very small and he has no need to transfer asset specificity to the lessee through a long-term contract. Thus, when there is a low relative income between non-agricultural and agricultural sectors:

$$r_{long} \cong r_{short} = 0 \quad (5b)$$

Third, the relationship between the lessor and lessee (re) will influence the incidence of opportunistic behavior among the contracting parties and the rate at which leases are signed: the more distant the relationship between the lessor and the lessee (that is, the less closely related they are), the bigger the risk of opportunistic behavior and the higher the cost of multiple transactions, and vice versa. Hence:

$$o = \mathrm{o}(re, \varepsilon); o_1 > 0 \quad (6)$$
$$t = \mathrm{t}(re, \varepsilon); t_1 > 0 \quad (7)$$

So when the lessor and lessee have close relations, the length of lease has no significant influence on the incidence of opportunistic behavior or on the level of losses caused by multiple transactions. This is because the closer the relations between the parties, the less the risk of opportunistic behavior and the lower the transaction cost of the lessor and lessee. Under such conditions, it does not matter whether a short-term or long-term contract is signed. Thus, when the lessor and lessee are have close relations:

$$o_{long} \cong o_{short} = 0 \quad (8a)$$
$$t_{long} \cong t_{short} = 0 \quad (9a)$$

By contrast, when the relationship between the lessor and lessee is a distant one, the length of lease will influence the incidence of opportunistic behavior and the losses caused by multiple transactions. This is because if a long-term contract is signed under such conditions, it will reduce both the rate of opportunistic behavior and the cost of multiple transactions. Thus, when the contracting parties do not have close relations:

$$o_{long} < o_{short} \quad (8b)$$

$$t_{long} < t_{short} \quad (9b)$$

If Formulas (1) to (9) are combined, the relationship between the transaction costs of the lessor and various factors can be further expressed as in Formulas (1A) to (1D) and Figure A in the Appendix.

To sum up, when land ownership is unstable, land is transferred between individuals who have close relations and the relative income between non-agricultural and agricultural sector is very high, lessors prefer a long-term lease over a short-term one. This is because the contractual arrangement can reduce the transaction costs that result from uncertainty, opportunistic behavior, asset specificity and the transaction rate.

Further, the probability that the lessor will opt for a long-term contract can be expressed as follows:

$$\text{prob}(\text{T} = T_{\text{long}}) = \text{p}(s_{-}, g_{+}, re_{+}) \quad (10)$$

On this basis, Hypothesis 1 can be proposed:

Hypothesis 1: All other things being equal, the lessor's preference with regard to the length of lease is affected by land ownership stability, relative income per capita between non-agricultural and agricultural sectors and the nature of the relationship between the lessor and the lessee.

Hypothesis 1A: The more stable the land ownership, the less chance of the lessor signing a long-term contract.

Hypothesis 1B: The higher the relative income per capita between non-agricultural and agricultural sectors, the more chance of the lessor signing a long-term contract.

Hypothesis 1C: The more distant the relationship between the lessor and the lessee, the more chance of the lessor signing a long-term contract.

3.2 *Lessees' preference with regard to lease length*

First, land ownership stability (s) affects the level of uncertainty associated with signing a lease, as the more stable the land ownership, the less the uncertainty and vice versa. Therefore:

$$u = \text{u}(s, \varepsilon); u_1 < 0 \quad (11)$$

So when land ownership is unstable, the extent to which it influences the level of uncertainty will be determined by the length of lease. Land ownership instability means greater uncertainty. If a short-term lease is signed under such conditions, the level of

uncertainty for the lessee will be reduced to a certain extent because lessor can not transfer this uncertainty to lessee. Thus, when land ownership is unstable:

$$u_{long} > u_{short} \quad (12a)$$

By contrast, when land ownership is stable, its influence on the level of uncertainty will not be significantly affected by the length of lease as the lessee faces a low level of uncertainty and has no need to pass on that uncertainty to the lessor through a short-term contract. Thus, when land ownership is stable:

$$u_{long} \cong u_{short} = 0 \quad (12b)$$

Second, the relative income per capita between non-agricultural and agricultural sectors (g) influences the asset specificity of lease signing (here 'asset specificity' refers to lessee's human capital specificity in agricultural production). This is because when a lessee decides to rent into some lands, which means he/she invests his/her human capital into agriculture and this lessee would lose the opportunity to get income from non-agriculture. So the higher the relative income between non-agricultural and agricultural sectors, the greater the loss of the lessee's human capital specificity in agricultural production and vice versa. Therefore:

$$r = r(g, \varepsilon); r_1 > 0 \quad (13)$$

So when the relative income between non-agricultural and agricultural sectors is very high, its influence on asset specificity will be affected by the length of lease. A high relative income means strong asset specificity. If a short-term contract is signed under such conditions, the loss of the lessee's human capital specificity in agricultural production may be reduced. Thus, when there is a high relative income between non-agricultural and agricultural sectors:

$$r_{long} > r_{short} \quad (14a)$$

By contrast, when the relative income between non-agricultural and agricultural sectors is low, its influence on asset specificity will not be significantly affected by the length of lease. This is because the loss of the lessee's human capital specificity in agricultural production is very small and he has no need to transfer asset specificity to the lessor through a short-term contract. Thus, when the relative income between non-agricultural and agricultural sectors is low:

$$r_{long} \cong r_{short} = 0 \quad (14b)$$

Third, the relationship between the lessor and lessee (re) will influence the incidence of opportunistic behavior and the transaction rate. This is because the more distant relationship between the lessor and the lessee, the bigger the risk of opportunistic behavior will and the higher the cost of multiple transactions and vice versa. Hence:

$$o = o(re, \varepsilon); o_1 > 0 \quad (15)$$
$$t = t(re, \varepsilon); t_1 > 0 \quad (16)$$

So when the lessor and lessee have close relations, the length of lease has no significant influence on the incidence of opportunistic behavior or on the level of losses caused by multiple transactions. This is because the closer the relationship between the parties, the less the risk of opportunistic behavior and the lower the transaction costs of the lessor and lessee.

Under such conditions, it does not matter whether a short-term or long-term contract is signed. Thus, when the lessor and lessee have close relations:

$$o_{long} \cong o_{short} = 0 \quad (17a)$$

$$t_{long} \cong t_{short} = 0 \quad (18a)$$

By contrast, when the relationship between the lessor and lessee is a distant one, the length of leases will influence the incidence of opportunistic behavior and the losses caused by multi-transaction. This is because if a long-term contract is signed under such conditions, it will reduce both the risk of opportunistic behavior and the cost of multiple transactions. Thus, when the contracting parties do not have close relations:

$$o_{long} < o_{short} \quad (17b)$$

$$t_{long} < t_{short} \quad (18b)$$

If Formulas (11) to (18) are combined, the relationship between the lessee's transaction costs and various factors can be further expressed as in Formulas (2A) to (2D) and Figure B in the Appendix.

To sum up, when land ownership is unstable, land is transferred between individuals who have close relations and the relative income between non-agricultural and agricultural sectors is very high, lessees prefer a short-term lease over a long-term one. This is because the contractual arrangement can reduce the transaction costs that result from uncertainty, asset specificity, risk of opportunistic behavior and the loss caught by multiple transactions.

Further, the probability that the lessee will opt for a long-term contract can be expressed as follows:

$$\text{prob}(\text{T} = T_{\text{long}}) = \text{p}(s_+, g_-, re_+) \quad (19)$$

On this basis, Hypothesis 2 can be proposed:

Hypothesis 2: All other things being equal, the lessees' preference with regard to the length of lease is affected by land ownership stability, relative income per capita between non-agricultural and agricultural sectors and the nature of the relationship between the lessor and lessee.

Hypothesis 2A: The more stable the land ownership, the more chance of the lessee signing a long-term contract.

Hypothesis 2B: The higher the relative income per capita between non-agricultural and agricultural sectors, the less chance of the lessee signing a long-term contract.

Hypothesis 2C: The more distant the relationship between the lessor and the lessee, the more chance of the lessee signing a long-term contract.

4. Data, variables and model

4.1 *Data source and samples*

4.1.1 *Data source*

All data are from a survey of households conducted in the city of Mianzhu in Sichuan Province and Fuyu County in Heilongjiang Province. Towns, villages and villagers' groups

("villagers' group" is a sub-unit of the village in China) were selected randomly and stratified sampling was undertaken based on the categories of land-transfer households and non-land-transfer households. We sorted these two kinds of households separately according to the house's number in every villagers' group, and chose one household in every five house numbers if there is someone at home when we did our survey. A total of 301 valid questionnaires were collected, of which 152 were from Mianzhu and 149 from Fuyu.

4.1.2 *Samples*

In our survey which was carrying out in 2010 and 2010, 145 farmers transferred land in the previous 12 months. There was a clear preference among those farmers for short-term leases: as Table 1 below shows, such contracts accounted for 58.7% of rural land transfers in Fuyu and 77.1% in Mianzhu.[2]

Table 1: Frequency distribution of lease lengths for cropland

	Fuyu County		Mianzhu City	
	Frequency	%	Frequency	%
Short-term	44	58.7	54	77.1
Long-term	31	41.3	16	22.9
Total	75	100	70	100

Our survey also showed that the educational level of householders and the number of members of a farmer's family who are migrant workers are factors in determining whether short-term or long-term contracts are preferred. Other factors include various differences between lessors and lessees.

With regard to lessees, householders who concluded long-term contracts had a higher educational level than those who concluded short-term contracts: as Table A in the Appendix shows, nearly 98% who concluded short-term contracts had not continued their education beyond junior high school, while the corresponding figure for householders who concluded long-term contracts was 75%. At the same time, the number of migrant workers among the family members of farmers who concluded long-term contracts is smaller than the number of such workers belonging to the families of farmers who concluded short-term contracts: as demonstrated in Table B in the Appendix, the families of farmers who concluded short-term contracts had two or fewer members who were migrant workers, while nearly 20% of the families of farmers who concluded long-term contracts had three migrant workers.

As regards lessors, there was no significant difference in educational level between householders who concluded long-term or short-term contracts: as can be seen from Table A in the Appendix, regardless of the type of contract concluded, 93% of householders did not continue their education beyond junior high school. There was also no significant difference between the number of family members who were migrant workers: Table B in the Appendix shows that regardless of the type of contract concluded, around two-thirds of farmers' families had two or fewer members who were migrant workers.

Thus it can be seen that it is not only the transaction costs and the level of rent but also various characteristics of family members and the number of family members who are migrant workers that co-determine the preference for lease length among farming households. For this reason, the relevant variables must be included as control variables in empirical analysis. Moreover, the results of the survey show that lessors and lessees have different considerations that inform their decisions on whether to sign a long-term or short-term

[2] In this paper, leases with duration of less than or equal to one year are identified as short-term; those of a duration exceeding one year are identified as long-term.

contract. Consequently, separate empirical analyses on lessors and lessees should be conducted.

4.2 *Metric model*

The following metric model below was used to test the theory outlined above:

$$\ln\left(\frac{P_i}{1-P_i}\right) = \beta' x_i + e$$

whereby P_i is the estimated probability of lease length; x_i is the vector of variables, including land ownership stability, the relationship between the lessor and the lessee, the high relative income per capita between non-agricultural and agricultural sectors, the level of rent, family characteristics and migrant labor statistics; β' is the parametric vector for estimation; and e is the error term. A binary logistic model was used for the analysis.

4.3 *Variables*

Based on previous analysis, the dependent variable is the length of lease. As this paper focuses mainly on the factors that influence lease length, samples of contracts that did not clearly stipulate the length of lease were excluded.

As regards independent variables for lessors, first, "rural land ownership stability" is represented by "with or without relatives on the village committee" and "Number of relatives in the same village"[3]. Lessors are the persons who rent out his land, it will be less likely that their lands be taken or adjusted by the village committee if they have relatives on the village committee or lots of their relatives are in the same village. This is because if their relatives can help them to give pressure to committee and affect the last decision about land adjusted from village committee. Second, "Relative income per capita between non-agricultural and agricultural sectors" is represented by "income from the first migrant labor". This is because the income from agriculture sector of a farmer in China is difficult to measure and stay in a very low level. So to some extent, the relative income between non-agriculture and agriculture for a farmer will increase with the increasing income he/she can get from non-agricultur.

As regards independent variables for lessees, first, "rural land ownership stability" is represented by "All rural land rented from the same person or not", because lessees are the persons who rent land from others, if they rent all the land from the same person, the possibility that some of land have been adjusted would be lower than the situation that they rent lands from different persons. Second, "Relative income per capita between non-agricultural and agricultural sectors" is represented by "Highest educational level of family members", because most of lessee family have no migrant workers. The family member who has the highest educational level is the one who most likely become a migrant worker, and the potential income would be decided by the educational level of the one who get a work in city, so we choose it to represent "Relative income per capita between non-agricultural and agricultural sectors".

In addition, various family characteristics and migrant labor statistics are included as control variables. The meaning and value of the variables are shown in Table 2 below.

Table 2: Variables and their meaning

Type of variable	Name of variable	Substitution variable and its meaning	
		For lessors	For lessees

[3] Land is reallocated every three years; families that have relatives on the village committee and more relatives in the same village are more likely to be able to maintain or expand the area of land farmed by them.

Dependent variable	Lease length	Long-term lease or not: 1 = short-term; 2 = long-term	Long-term lease or not: 1 = short-term; 2 = long-term
Examined variables	Land owner-ship stability	With or without relatives on the village committee: 1 = yes; 0 = no	All rural land rented from the same person or not: 0 = no; 1 = yes
		Number of relatives in the same village	
	Relation-ship to lessor/ lessee	1 = from different villages; 2 = from the same village but not from the same villagers' group and not relatives or friends; 3 = relatives or friends from the same village but not from the same villagers' group; 4 = from the same villagers' group but not relatives or friends; 5= relatives or friends from the same villagers' group.	1 = from different villages; 2 = from the same village but not from the same villagers' group and not relatives or friends; 3 = relatives or friends from the same village but not from the same villagers' group; 4 = from the same villagers' group but not relatives or friends; 5= relatives or friends from the same villagers' group.
	Relative income per capita between non-agricultural and agricultural sectors	Income over previous 12 months from urban labor by the first family member	Highest educational level of family members: 1= elementary school; 2 = junior high school; 3 = senior high school; 4= college/university
Other variables	Number of family members who are migrant workers	Number of family members in urban labor	Number of family members in urban labor
	Family characteristics	All rural land rent out for the same person or not: 0 = no; 1 = yes	Educational level of the householders: 1= elementary school; 2 = junior high school; 3 = senior high school; 4= college/university

5. Regression (result) analysis

5.1 *Regression results for rural land lessors*

The results of the logistic model regression for lessors are shown in Table 3 below. From these results, we see that the variables of the relationship to lessee, the relative income per capita between non-agricultural and agricultural sectors, and one of the two variabls which represent as land ownership stability have passed the regression test, which means these three variables can be used to explain how lessors choose between long-term and short-term leases. First, the less closed (that is, more distant) the relationship between the lessor and the lessee, the greater the probability of the lessor opting for a long-term lease. Second, the higher income over previous 12 months from urban labor by the first family member (which means the higher relative income per capita between non-agricultural and agricultural sectors), the

greater the probability of the lessor choosing a long-term lease. And third, the more numbers of relatives in the same village (which means the more stable of land ownership), the less the probability of the lessor choosing a long-term lease.

Table 3: Results of logistic model regression for lessors

Type of variable	Variable	Coefficient	Significance	Exp (B)
Land ownership stability	With or without relatives on the village committee	0.298	0.496	1.347
	Number of relatives in the same village	-0.464*	0.097	0.629
Relationship to lessee	Relationship to lessee	-0.295*	0.069	0.745
Relative income per capita between non-agricultural and agricultural sectors	Income over previous 12 months from urban labor by the first family member	0.000**	0.05	1.000
Number of family members who are migrant workers	Number of family members in urban labor	0.494	0.225	1.639
Family characteristics	All rural land rent out for the same person or not	1.626	0.205	5.082
-2 log likelihood		89.008		
Cox & Snell R Square		0.164		
Nagelkerke R Square		0.223		

* Indicates significance level of 0.1
** Indicates significance level of 0.05
*** Indicates significance level of 0.01

5.2 ***Regression results for rural land lessees***

The results of the logistic model regression for lessees are shown in Table 4 below. From those results, we see that all the variables that have passed the regression test. Thus these five variables can be used to explain how lessees make the choice between a long-term and short-term lease. First, if the lessee rents all rural land from the same person (which means the land ownership is more stable), the probability of his choosing a long-term lease is greater than in the case of those who do not rent all rural land from the same person. Second, the less closed (that is, the more distant) the relationship between the lessor and lessee, the greater the probability of the lessee choosing a long-term lease. Third, the higher educational level the highest educational level of family members (which means the higher relative income per capita between non-agricultural and agricultural sectors), the less the probability of the lessor choosing a long-term lease. Fourth, the more family members who are migrant workers, the higher the probability of the lessee choosing a long-term lease. Finally, the higher educational level of householder, the greater the probability of the lessee choosing a long-term lease

Table 4: Results of logistic model regression for lessees

Type of variable	Variable	Coefficient	Significance	Exp (B)
Land ownership stability	All rural land rented from the same person or not	1.430*	0.068	4.181

Relationship to lessee	Relationship to lessee	-0.426*	0.081	0.653
Relative income per capita between non-agricultural and agricultural sectors	Highest educational level of family members	-0.912*	0.095	0.402
Number of family members who are migrant workers	Number of family members in urban labor	1.681**	0.026	5.373
Family characteristics	Educational level of the householders	1.432**	0.022	4.187
-2 log likelihood		53.856		
Cox & Snell R Square		0.261		
Nagelkerke R Square		0.395		

* Indicates significance level of 0.1
** Indicates significance level of 0.05
*** Indicates significance level of 0.01

5.3 ***Analysis of the results***

From the regression results obtained from Table 3 and 4, we see that all of our two hypotheses have passed the test, as Table 5 below shows.

Table 5: Test results of the hypotheses

Hypothesis	Content	Passed or not
1A	Land ownership stability has a negative influence on the lessor's preference with regard to lease length	Partly pass
1B	Relationship to the lessee has a positive influence on the lessor's preference with regard to lease length	Yes
1C	Relative income has a positive influence on the lessor's preference with regard to lease length	Yes
2A	Land ownership stability has a positive influence on the lessee's preference with regard to lease length	Yes
2B	Relationship with the lessor has a positive influence on the lessee's preference with regard to lease length	Yes
2C	Relative income has a negative influence on the lessee's preference with regard to lease length	Yes

Note: Positive influence here means in favor of a long-term lease; negative influence means in favor of a short-term lease.

First, the variable "number of relatives in the same village" has a significant impact on the preference with regard to lease length of lessor, as we predicted, and there is also a negative correlation here, although the variable "with or without relative on the village committee" has an insignificant impact. In this paper, they are the two proxy variables of "land ownership stability" for lessor, it means if a lessor have few relatives in the same village, the level of ownership stability is low and thus the transaction cost will be very high; moreover, he need to sign a long-term contract in order to pass on the transaction cost to the

lessee. By the same token, land ownership instability means that in China most lessors prefer long-term contracts in order to pass on the high transaction cost to the lessee.

For lessee, the variable "whether or not all rural land is rented from the same person" has a significant positive impact on the preference with regard to lease length. In this paper, we take it as a proxy variable of land ownership stability for lessee, which influences the transaction cost. This indicator has a positive impact on the lessee, by which is meant that if the lessee rents all rural land from the same person, the level of ownership stability is high and thus the transaction cost will be very low; moreover, he does not need to sign a short-term contract in order to pass on the transaction cost to the lessor. By the same token, land ownership instability means that in China most lessees prefer short-term contracts in order to pass on the high transaction cost to the lessor.

Second, the variable "relationship to lessor/lessee" has a significant impact on both the lessor and the lessee and there is a positive correlation with the preference with regard to lease length, as we predicted. Thus the more distant the relationship between the lessor and lessee, the higher the transaction cost; and the best way for both the lessor and the lessee to reduce that cost is to sign a long-term lease. In China, since most leases are signed by farmers between whom relations are close – invariably they are relatives or good friends – we can conclude that in this respect it makes little difference if a short-term or long-term lease is signed (Department of Rural Affairs, National Bureau of Statistics of China and Research Team of the Si Chuan Survey Office, 2014). Besides, for keeping this good relation with their relatives and friends, both lessor and lessee prefer to sign a short-term contract with each other. This is because they can easily change any information about the lease but not to damage the interests of their partners if they have a short term contract.

Third, the variable "income over previous 12 months from urban labor by the first family member" has a very significant impact on lessors, as we predicted, and there is also a positive correlation here. Thus, as regards lessors, the higher the income from migrant labor, the greater the probability of a long-term contract being signed. Moreover, the higher the relative income between non-agricultural and agricultural sectors, the lower the transaction cost of renting out land. And lessors tend to prefer long-term leases because such contracts help keep the transaction cost low. This is precisely the situation in China today: the relative income between non-agricultural and agricultural sectors is very high and lessors prefer long-term leases.

For lessees, the variable "Highest educational level of family members" has a significant negative impact on lessees. In this paper, it is a proxy variable of "relative income between non-agricultural and agricultural sectors" for lessee. Thus, the higher the educational level of the one who is the highest educational level in the family, the less the probability of a long-term contract being signed. Moreover, the higher the relative income between non-agricultural and agricultural sectors, the higher the transaction cost of renting in land. And lessees tend to prefer short-term leases because such contracts help keep the transaction cost low. This is precisely the situation in China today: the relative income between non-agricultural and agricultural sectors is very high and lessees prefer short-term leases.

At the same time, the umber of family members in urban labor has a significant impact on and a positive correlation with the lessee's preference with regard to lease length. The more the family members in lessee's family, the greater the probability of their signing long-term contracts. As regards the educational level of the householder, this has a significant positive impact on the lessee's preference with regard to the length of lease.

To sum up, we know if land ownership is unstable, the relationship between the lessor and the lessee is close and the relative income between non-agricultural and agricultural sectors is large, lessors prefer long-term contracts while lessees prefer short-term ones. That leaves the question of why most farmers end up opting for short-term contracts.

6. Further discussion: Why the (un-)willingness of lessees to rent land is the key factor determining China's rural land rental market

At the end of the previous section, we need to know who occupies the dominant position in China's rural land rental market.

6.1 *Non-Walrasian equilibrium: Buyer's market and seller's market*

Sometimes, certain markets reach a non-Walrasian equilibrium (Clower, 1965; Varian, 1977), whereby there is an imbalance between supply and demand. More precisely, when supply exceeds demand, the market is called a buyer's market, which means the buyer is in the dominant position and the seller in the weak position; but when demand exceeds supply, the market is called a seller's market, which means the seller is in the dominant position and the buyer in the weak position.

6.2 *High relative income and closed relation make rural land market being a buyer's market*

The rural land market in China is also a buyer's market because of relative income of a farmer getting between non-agriculture and agriculture, and the closed relation between lessor and lessee.

Firstly, in China today, there are high relative income of a farmer getting from between between non-agricultural and agricultural, and the current trend is one of those relative income continuing to grow (Lin, 2004; Chen and Lin, 2010; and Zhang, 2011); thus there is a mass exodus of young laborers from the countryside to urban areas, where they work in secondary and tertiary industries. The inevitable result is an increase in rural land-use rights available and a growing supply of rural land to be rented out. But the high relative income between non-agriculture and agriculture makes farmers reluctant to farm new land and thus the demand for land leases decreases. As the relative income grows ever higher, the oversupply in the rural land rental market becomes more and more evident, resulting in a buyer's market.

Secondly, land leasing (transfer) is more likely to take place among those who have close relations, that is, within the village (Xu, 2010; Department of Rural Affairs, National Bureau of Statistics of China and Research Team of the Si Chuan Survey Office, 2014) and thus a closed or semi-closed market is formed. In such a case, the lessor and lessee are not in a wholly competitive market; and that market will not be able to regulate the imbalance in supply and demand through the price mechanism. In other words, a system of land transfer based on close relations restricts the price mechanism's function to regulate the market and it is difficult for a buyer's market that displays disequilibrium to self-regulate.

6.3 *Land ownership instability strengthen the buyer's market which lessees in the dominant position*

At last, land ownership instability in China has consolidated the buyer's market in rural land leasing. Collective land ownership in rural areas and the regular adjustment of rural land from different farmers has resulted in the instability of rural land ownership in China (Zhong and Ji, 2009; Feng et al., 2013). Farmers who own rural land-use rights, regardless of whether long- or short-term, are more likely than not to rent out their land because leasing means the risks inherent in unstable land ownership rights will be passed on to the lessee. Meanwhile, however, lessees cease renting land because of those very risks. Thus it can be seen that land ownership instability increases the willingness of lessors to lease land but decreases that of lessees to rent land, thus strengthening the buyer's market.

To sum up, the rural land rental market in China is a buyer's market – that is, one in which lessees are in the dominant position. Thus it is the lessee's preference for short-term contracts that has become the market's preference too.

7. Conclusions

Rural land in China spreads over a vast area but is sparsely populated. As a result, the development of the country's agricultural economy and food security has been constrained by small-scale farming (that is, the small average area of land per farmer) and inefficient land utilization. The government views rural land transfer as an effective means of dealing with this issue. A large number of scholars believe that the length of lease is the key factor in how rural land transfer impacts on rural land utilization efficiency and the majority argue that long-term leases are to be favored over short-term ones because the former lead to more investment in rural land and improved conservation practices. However, most rural land leases in China are short-term contracts. The purpose of this paper is to explain that paradox.

We began by describing the three basic features of China's rural land transfer market – namely, land ownership instability, the high relative income per capita between non-agricultural and agricultural sectors and the close relations between the lessor and the lessee. We constructed a theory models that could be adapted to cover both lessors and lessees to explain how their preferences with regard to the length of lease are determined by considering the transaction cost, which, in turn, is influenced by the three basic features identified immediately above. We then used data collected in a survey conducted in the city of Mianzhu in Sichuan Province and Fuyu County in Heilongjiang Province to do some regressions to test our models and hypotheses. Our regression analysis verified all of those hypotheses.

We concluded that lessors prefer long-term contracts but lessees prefer short-term ones because of land ownership instability, close relations between lessors and lessees and the high relative income per capita between non-agricultural and agricultural sectors. Finally, we made use of non-Walrasian equilibrium theory to examine why the lessee's preference is the key factor determining the nature of China's rural land transfer market. Our research showed that the three basic features of that market made it a buyer's market; and since it is the lessees (that is, the buyers) who are in the dominant position, their willingness or unwillingness to lease land is what ultimately determines the nature of the market. This is the reason why long-term leasing is generally believed more efficient; however, as most surveys demonstrate, China's farmers prefer to sign short-term leases.

Reference

Bryan, D., 1990. 'Natural' and 'Improved' Land in Marx's Theory of Rent. Land Economics. 2, 176—81.

Chen, B. and Lin, Y., 2010. Development strategy, urbanization and urban-rural inequality. Nankai Economic Studies. 1, 3–18 (in Chinese).

Chen, H. and Nie, B., 2006. Analysis of land lease by farmers. Chinese Rural Economy. 2, 42–48 (in Chinese).

Ciaian, P. and Swinnen, J. F. M., 2006. Land Market Imperfections and Agricultural Policy Impacts in the New EU Member States: A Partial Equilibrium Analysis. American Journal of Agricultural Economics. 4, 799–815.

Clower, R. W., 1965. The Keynesian counter-revolution: A theoretical appraisal. In: F. H. Hahn and F. P. R. Brechling (eds). The Theory of Interest Rates. London: Macmillan.

Cox, E., 2010. Lease-Based Approach to Sustainable Farming, Part I: Farm Tenancy Trends and the Outlook for Sustainability on Rented Land. Drake Journal of Agricultural Law. 15, 369–92. Available at: http://heinonline.org/HOL/Page?handle=hein.journals/dragl15&div=23&g_sent=1&collection=journals.

Crawford, V., 1988. Long-term Relationships Governed by Short-term Contracts. American Economic Review. 3, 485–99.

Deininger, K. and Jin, S., 2005. The potential of land rental markets in the process of economic development: Evidence from China. Journal of Development Economics. 78, 241–70.

De Schutter, O., 2009. Large-scale land acquisitions and leases: A set of core principles and measures to address the human rights challenge (report by the UN special rapporteur on the right to food). Available at: http://www.srfood.org/images/stories/pdf/officialreports/20100305_a-hrc-13-33-add2_land-principles_en.pdf.

Department of Rural Affairs, the National Bureau of Statistics of China and the Research Team of the Si Chuan Survey Office., 2014. The survey on rural land transfer in China. The World of Survey and Research. 10, 24–26 (in Chinese).

Feder, G. and Noronha, R., 1987. Land rights systems and agricultural development in Sub-Saharan Africa. World Bank Research Observer. 2 (2), 143–69.

Feng, L., Jiang, Y., Ye, J. and Zhu, K., 2013. Farmers' attitudes in the changing process of the Chinese land system. Management World. 7,44 –58 (in Chinese).

Gao, L., Huang, J.， Rozelle, S. and Xu, Z.， 2011. Emerging rental markets and investment in agricultural land in China. China Economic Quarterly. 4, 1499–514 (in Chinese).

Hellwig, M., 1988. Equity, Opportunism, and the Design of Contractual Relations: Comment. Journal of Institutional and Theoretical Economics. 144, 200–207.

Hu, W., 1997. Household land tenure reform in China: Its impact on farming land use and agro-environment. Land Use Policy. 14, 175–86.

Jiang, C. and Xu, K., 2014. Thoughts on the development of agricultural-scale operation by guiding rural land transfer. Jianghuai Tribune. 4, 61–66 (in Chinese).

Jin, S., and Deininger, K., 2009. Land rental markets in the process of rural structural transformation: Productivity and equity impacts from China. Journal of Comparative Economics. 37, 629–46.

Kong, J., 2009. Analysis of land ownership stability and agricultural performance on farmers' management behavior. Research on Development. 2, 58–62 (in Chinese).

Li, T., Zhang, Y. and Xin, X., 2009. Analysis of the characteristics and influencing factors of land circulation. Chinese Rural Economy. 1, 10–20 (in Chinese).

Lin, G., 2004. Hierarchical system, market economy and the widening income gap in urban and rural areas. Management World. 4, 30–50 (in Chinese).

Liu, W. and Zhang, Y., 2013. Research on short-trem lease in rural land transfer: paradox and its explanations. Rural Economy. 1, 22–25 (in Chinese).

Pei, X., Xie, G. and Zhang, Y., 2011. The farmers' will and the role of the government in the circulation of rural land. Chinese Population, Resources and Environment. 6, 55–70 (in Chinese).

Sun, Y., 2012. The Correlation between Labor Force Mobility and Rural Land Transfer: An Example from Shandong Province. Reform. 9, 84—88 (in Chinese).

Tan, S., Heerink, N. and Qu, F., 2006. Land fragmentation and its driving force in China. Land Use Policy. 23, 272–85.

Tang, Z., 2015. China's rural land system: controversy and thinking**.** World Agriculture. 1, 196–202 (in Chinese).

Varian, H. R. , 1977. Non-Walrasian Equilibria. Econometrica. 3, 573—90.

Williamson, O. E., 1979. Transaction-Cost Economics: The Governance of Contractual Relations. Journal of Law and Economics. 2, 233–61.

Williamson, O. E., 1985. The Economic Institutions of Capitalism. New York: Free Press.

Winter, S. G., 1991. On Coase, Competence, and the Corporation. In: O. E. Williamson and S. G. Winter (eds): The Nature of the Firm: Origins, Evolution, and Development. Oxford: Oxford University Press.

Xu, G., 2010. Analysis of the survey on the development of land transfer in China. Career Horizon. 7, 156–58 (in Chinese).

Xu, H., 2009. Research on land ownership stability and long-term investment in rural land. Guide to Business. 3, 32–33 (in Chinese).

Xu, Z. and Kong, X., 2010. Empirical analysis of factors affecting lessors' lease length. Journal of Agrotechnical Economics. 7, 30–40 (in Chinese).

Yu, H., Huang, J.， Rozelle, S., Brandt, L. and Zhang, L., 2003. Use rights security, land transfer and resource degradation. Economic Research Journal. 9, 82–95 (in Chinese).
Zhang, Y., 2011. Problems and measures of China's urban-rural integration. Journal of East China Normal University (Philosophy and Social Sciences). 1, 24–31 (in Chinese).
Zhang, Y., Wang, X., Glauben, T. and Brummer, B., 2011. The impact of land reallocation on technical efficiency: evidence from China. Agricultural Economics. 42, 495—507.
Zhao, Q. and Tang, Z., 2008. Empirical research on rural land transfer and the choice of its contract. China Rural Survey. 3, 13–19 (in Chinese).
Zhong, F. and Ji, Y., 2009. Land rights, non-agricultural employment opportunities and agricultural investment by farmers. Economic Research Journal. 12, 43–51 (in Chinese).