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Analysis of Hidden Danger in Farmer's Rights and Interests during Farmland Transfer

——An Evaluation of Rights Safeguarding Effect of Farmland Transfer Contract

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Abstract Taking Shuangliu County, Chengdu City, China as an example, evaluation index system for the rights protection effects of farmland transfer is established contract from three aspects of basic information, transfer agreement and legal safeguards in the contracts. According to the investigation data, weight of evaluation index is determined by both entropy weight and Analytic Hierarchy Process. Comprehensive index method is used to evaluate the rights protection effects of farmland transfer contract in the flat dam, high hill and low hill in Shuangliu County, Chengdu, China. Result shows that the transfer agreement of farmland and the basic information of contract greatly affect the rights protection effects of farmland transfer contract. There are differences in the five indices of the information of the signature of contract, pricing for payment, time limit for farmland transfer, transfer mode of farmland, and use range of farmland transfer. During the farmland transfer in reality, there are three hidden dangers in farmer's land rights and interests, which are the ill-formed transfer behavior, the relatively low income of farmers from farmland transfer, and the quality decline of farmland and difficult full reclamation in transfer period. Based on the evaluation result and investigation data, countermeasures are put forward to improve the rights protection effects of farmland transfer contract.

Key words Farmland transfer, Farmer's rights and interests, Rights safeguarding effect, AHP, China

Farmland transfer contract, a legal form of farmland transfer relationship, is not only a declaration of farmland transfer negotiation between both parties, but also a voucher of the change of real right so as to prevent disputes. Binding mechanism of this contract can reflect the rights and interests of farmer in land transfer, and safeguard the legal rights in contract. During the acceleration of farmland transfer, function of farmland transfer contract should be fully exerted in order to ensure the legal rights and interests of farmer. Taking the 9 towns in Shuangliu County as examples, effects of farmland transfer contract on ensuring the legal rights and interests of farmer are investigated and evaluated. Based on this, countermeasures for solving the hidden dangers in farmer's rights and interests during farmland transfer are discussed.

1 The general situation of research region

Shuangliu County, having an area of 1 068 square kilometers and a total population of 936 thousand, is located in the hinterland of Chengdu Plain, Sichuan Province, China, with three sides surrounded Chengdu City. Flat dam, low hill, and high hill each account for 1/3 of the total area of Shuangliu County, which is 10 kilometers from Chengdu City. Shuangliu County has jurisdiction over 21 towns and 4 subdistrict administrative offices. It is one of the 100 strongest counties in the nation's economy, the top of 100 strongest counties in western China, and one of the mose developed areas in western China. In June, 2007, the State Council of the People's Republic of China has approved that Chengdu City establishes a comprehensive reform experimental area coordinating rural and urban areas in China. As a sample county of the comprehensive reform experimental area in Chengdu, Shuangliu County has put forward the development idea of " three concentrating" in the beginning of the year 2003, which is " concentrating industry into development zone; concentrating farmers into townships; concentrating land into the owner". Transfer of land contract management right has started early in this region. The large area of transfer is still a certain representation in Chengdu, and even China, at present.

2 Data source, index construction and model establishment

2.1 Data source Taking Shuangliu County, Sichuan Province, China as an example, Dongsheng sub-district, Huangshui Town, Jinqiao Town, Xinglong Town, Zhengxing Town, Huangjia Town, Hejiang Town, Jitian Town, and Sanxing Town represent the three terrain regions of flat dam, low hill and high hill. 5 farmer households in each town are selected randomly and a total of 45 valid questionnaires are received. Relevant data are obtained through questionnaire analyses.

2.2 Construction of index system According to the " systemic and comprehensive, prospective and guided, stable and operational" principles, research on farmer's land transfer right by scholars and the opinions of experts are taken as the references, based on the *Real Right Law*, the *Law of Farmland Contract*, the *Land Management Law*, the *Contract Law of China*, and *the Measures for the Administration of Circulation of Farmland Contracted Management Right*. After screening, adjustment and system integration, a comprehensive evaluation index system is established, which is an evaluation index sys-

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tem for rights protection effect of farmland transfer contract.

2.3 Establishment of model

2.3.1 Establishment of hierarchy. Rights protection effect of farmland transfer contract is evaluated from three aspects of basic information, transfer agreement and legal safeguards. Fig. 1 illustrates the hierarchy of evaluation index system.

Table 1 Evaluation index system for rights protection effect of farmland transfer contract

Target layer	Criterion layer	Index layer
Rights protection effect of farmland transfer contract A	Basic information B_1	Information about the transferee of farmland C_1
		Basic information of farmland C_2
		Information of the signature of contract C_3
	Transfer agreement B_2	Pricing for payment C_4
		Time limit for farmland transfer C_5
		Transfer mode of farmland C_6
		Use range of farmland transfer C_7
		Treatment of related facilities after time limits C_8
	Legal safeguards B_3	Rights and obligations of both parties C_9
		Default responsibility C_{10}

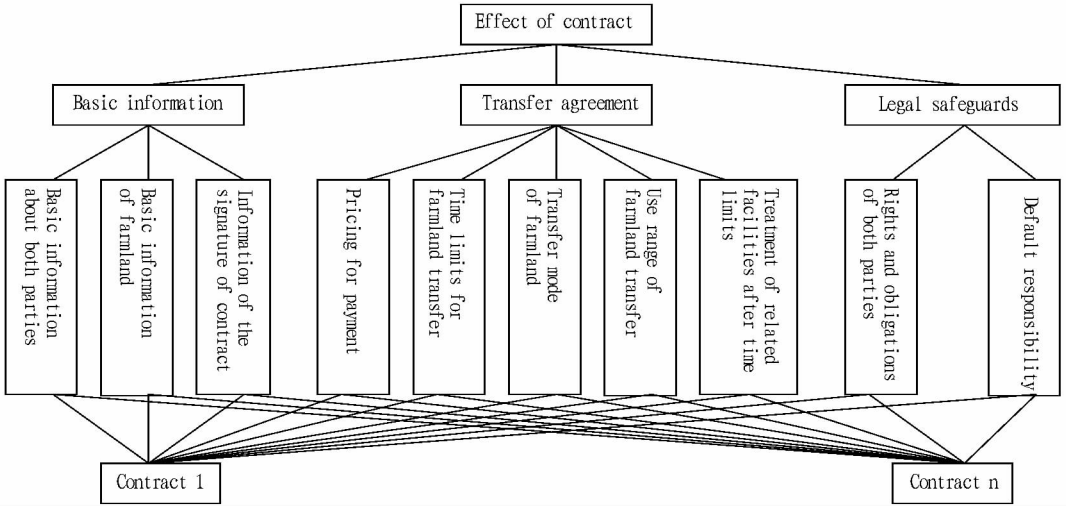

Fig. 1 Hierarchy of evaluation index

2.3.2 Determination of index matrix and weight vector. Taking a certain factor in a layer as the criterion, we compare the dominance relationship between two factors in the one layer down. According to their importance, scores are given by experts based on "1 – 9" judgment scale. Finally, a two – two comparison judgment matrix is obtained for evaluation index. Judgment matrix at criterion layer A, judgment matrix of basic information B_1, judgment matrix of transfer situation B_2, and legal safeguards matrix B_3 are

$$A = \begin{bmatrix} 1 & 1/5 & 5 \\ 5 & 1 & 8 \\ 5 & 1/8 & 1 \end{bmatrix},\ B_1 = \begin{bmatrix} 1 & 1/2 & 1/7 \\ 2 & 1 & 1/5 \\ 7 & 5 & 1 \end{bmatrix},$$

$$B_2 = \begin{bmatrix} 1 & 2 & 4 & 3 & 7 \\ 1/2 & 1 & 3 & 2 & 6 \\ 1/4 & 1/3 & 1 & 1/3 & 3 \\ 1/3 & 1/2 & 3 & 1 & 5 \\ 1/7 & 1/6 & 1/3 & 1/5 & 1 \end{bmatrix},\ \text{and}\ B_3 = \begin{bmatrix} 1 & 1/2 \\ 2 & 1 \end{bmatrix},$$

respectively. Hence, the weight vector in judgment matrix is obtained, which has passed the consistency test ($C.R = 0.004\ 3 < 0.100\ 0$).

2.3.3 Calculation of entropy weight. Since the number of qualitative indices is relatively great in evaluation index system, "1 –9" judgment scale can be used to evaluate the rights protection effect of sample contract, in order to obtain the judgment matrix p_{ij} for the rights protection effect of sample contract, and to calculate the entropy H_i of evaluation index and the entropy weight $\tilde{\omega}_i$ of index. Their equations are

$$H_i = -[\ln(m)]^{-1} \sum_{j=1}^{m} p_{ij}, \tag{1}$$

$$p_{ij} = \begin{bmatrix} p_{11} & p_{12} & \cdots & p_{1n} \\ p_{21} & p_{22} & \cdots & p_{2n} \\ \vdots & \vdots & \cdots & \vdots \\ p_{m1} & p_{m2} & \cdots & p_{mn} \end{bmatrix}, \tag{2}$$

$$\text{and}\ \tilde{\omega}_i = \frac{1 - H_i}{\sum_{j=1}^{n} (1 - H_i)}, \tag{3}$$

where H_i is the entropy of evaluation index, $\tilde{\omega}_i$ is the entropy weight of evaluation index, m is the number of contracts, n is the number of evaluation indices, p_{ij} is the judgment matrix for the m contracts and n evaluation indices.

2.3.4 Correction of weight. Entropy weight and the weights obtained from Analytic Hierarchy Process are combined together. Weight is obtained by normalization method. The equation is

$$u_i = \frac{\omega_i \tilde{\omega}_i}{\sum_{j=1}^{n} \omega_i \tilde{\omega}_i}. \tag{4}$$

2.3.5 Evaluation on the rights protection effect of farmland

transfer contract. Rights protection effects of farmland transfer contract in three different topographic regions are calculated. The equation is

$$y_i = \sum x_i * u_i \quad y_j = \sum y_{jk}/m_j, \tag{5}$$

where y_i is the score of a sample, x_i is the score of contract under the ith index, u_i is the weight of the ith index, y_j is the total score of topographic region j, y_{jk} is the score of the kth contract in topographic region j, and m_j is the number of samples in topographic region j.

3 Result and analysis

3.1 Determination of the weight of evaluation index and the rights protection score of farmland transfer contract

According to equations (1) – (4), Table 2 reports the weight ω_i, entropy weight $\tilde{\omega}_i$, entropy H_i, and index weight u_i after correction.

Based on the evaluation on the rights protection effect of farmland transfer contract in three topographic regions in Shuangliu County, scores of rights protection effects of farmland transfer contract are obtained (Table 3).

Table 2 Evaluation index weight of the rights protection effect of farmland transfer contract

Index	ω_i	H_i	$\tilde{\omega}_i$	u_i
C_1	0.051 9	0.984 0	0.025 8	0.012 9
C_2	0.067 7	0.874 4	0.202 5	0.202 5
C_3	0.161 1	0.959 6	0.065 2	0.100 8
C_4	0.175 3	0.894 6	0.169 9	0.285 8
C_5	0.143 4	0.955 4	0.071 9	0.099 0
C_6	0.088 7	0.952 8	0.076 1	0.064 7
C_7	0.122 2	0.922 5	0.124 9	0.146 5
C_8	0.054 9	0.939 8	0.097 0	0.051 1
C_9	0.060 7	0.947 1	0.085 2	0.049 6
C_{10}	0.074 1	0.949 4	0.081 6	0.058 0

Table 3 Scores of the rights protection effect of farmland transfer contract

Target layer	Criteria layer	Index layer	Flat dam	Low hill	High hill
Rights protection effect of contract A	Basic information B_1	Information about the transferee of farmland C_1	0.467 1	0.467 1	0.467 1
		Basic information of farmland C_2	0.609 3	0.609 3	0.609 3
		Information of the signature of contract C_3	0.805 5	0.322 2	1.288 8
	Transfer agreement B_2	Pricing for payment C_4	1.402 4	0.525 9	0.701 2
		Time limits for farmland transfer C_5	1.147 2	0.286 8	1.003 8
		Transfer mode of farmland C_6	0.620 9	0.443 5	0.532 2
		Use range of farmland transfer C_7	0.855 4	0.855 4	0.122 2
		Treatment of related facilities after time limits C_8	0.439 2	0.439 2	0.384 3
	Legal safeguards B_3	Rights and obligations of both parties C_9	0.546 3	0.546 3	0.546 3
		Default responsibility C_{10}	0.666 9	0.666 9	0.592 8
Total score			7.337 8	5.162 6	6.248 0

3.2 Major influencing factors and sample differences of rights protection effect of contract Table 2 shows that index of transfer agreement (B_2) is the most important factor for the rights protection effect of contract. B_2 has flexible signing mode and belongs to non-standard term, which determines the rights protection effect of contract to a large extent. Moreover, index of basic information (B_1) also greatly affects the contract performance, because information of the signature of contract (C_3) can reflect the farmers' rights to know and to participate. Signing of other standard terms in the contract shall consult to the templet generally. Thus, they are less flexible and are well implemented and their effects on rights protection are little.

Table 3 indicates that there are differences in the rights protection effects of farmland transfer contract in flat dam, low hill, and high hill, which are caused by the five indices of the information of the signature of contract (C_3), pricing for payment (C_4), time limits for farmland transfer (C_5), transfer mode of farmland (C_6), and use range of farmland transfer (C_7). Analysis on samples shows that there are several key differences in reality. For instance, signature of contract includes the signature of committee in the village only, the signatures of both committee in the village and representative of village people, and the signatures of the transferee, committee in the village, and representative of village people. Pricing modes may be a fixed number of currency, a fixed number of grain, an increasing number of currency year by year in proportion, or an increasing number of grain year by year in proportion. Time limits for farmland transfer are mainly less than 20 years, 20 – 50 years, and more than 20 years. Transfer mode mainly includes rent, subcontract, and land share. And farmland transfer is used for agriculture, non-agriculture and the usage not mentioned in the contract.

3.3 Analysis of hidden danger in farmer's rights and interests based on the differences in contracts According to the concrete condition of sample contracts and the evaluation result of farmland transfer contract in the three regions, there are several hidden dangers in farmer's rights and interests during farmland transfer.

(1) The ill-formed transfer behavior. Some contracts have the problems of irregular terms, unclear content and responsibilities, and incomplete signature. According to the rules, farmland transfer should be approved by more than two thirds of the members before right confirmation; and farmland transfer contract should have the signatures of the representative of village people, or all the people in village. Investigation shows that 22% contracts for farmland transfer have the problem of incomplete signature, indicating that both farmer' s right to know and right of speech have not yet been fully exercised. Thus, the subject status of farmer in farmland transfer has not been guaranteed.

(2) Relatively low income of farmers from farmland transfer. Sample shows that the farmland transfer contracts before the year 2005 are mainly in the pricing form of a fixed number of currency and some of the contracts have a time limit over 30 years. The long time limit and unscientific pricing mode have restricted farmer's benefit sharing from land value increment. Meanwhile, there is an irrational phenomenon in some townships. The transfer mode is land share, but farmers can not enjoy the allocation of profits and only receive dividends at a fixed number of currency or grain. Therefore, farmers should bear the management risk but can neither participate in the decision-making of company, nor share the operation benefits of the company.

(3) Quality decline of farmland and difficult full reclamation in transfer period. Scale management of farmland leads to the change of a large amount of farmland into agricultural non-cultivated land. And naturally, some will be used for the construction for productive purposes. After the time limit of transfer or meeting operation problems, it may be difficult for farmers to returning the land into farmland, which threatens the long-term interests of land.

4 Countermeasures and suggestions

4.1 Using a unified contract; improving the record and supervisory system A unified contract can ensure the complete articles and complete procedures in every transfer contract. We should improve the organization, standardize the behavior of farmland transfer, strengthen the standardization and legalization of farmland transfer contract, establish a perfect recording system of contract, and form professionals and specialized agencies[1]. At the same time, we should also set up specialized identification institutions for farmland transfer contract in townships, implement relevant polices to avoid the contract invalidation and contract breaking.

4.2 Innovating farmland transfer mode Farmers can select grain as a payment mode, which has the function of ensuring the basic needs. And an increasing payment year by year in proportion or payment according to the growth rate of CPI should be adopted when possible. We should innovate a transfer mode, try to implement the plan of "housing land for housing, contract land for social security"[2], adopt new modes to make farmers enjoy more benefits, such as establishing rural land cooperative with land management right as the share[3], strengthen the training and education for grass-roots cadres and farmers' representatives, make sure that farmers understand the contents of transfer modes, clarify the rights and obligations, and eliminate the inequality in the contract.

4.3 Paying attention to the use of farmland transfer; improving related security systems Contract signature should conform to the rules formulated by the state, that is, land after transfer should be used as agricultural land. Specialized agency is sent to monitor the use situation of farmland after transfer, to detect the quality of farmland regularly, to ensure the capacity of agricultural land reclamation, to guarantee the red line of farmland area, and to safeguard the long-term interests of farmers. At the same time, we should establish a specialized protection regime for farmers' land rights action, improve the rural social security system, and offer better external conditions for land transfer.

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the index system selected still need further verification, because there are many factors affecting the farmland productivity. Besides, this research only evaluates the influencing factors of regional total yield, but neglects the influencing factors of unit yield. Therefore, differences between total yield and unit yield also need further research.

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