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Issues concerning Farmland Transfer in the Development of China's Agricultural Modernization—Based on the Survey of Farmers in 21 Townships of Sichuan Province

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Abstract Based on the actual survey of 724 rural households in 21 townships of Sichuan Province, this article analyzes the basic information, basic characteristics and problems in current China's farmland transfer. The results show that the rural land contractual management right is relatively stable; in farmland transfer market, the degree of development of farmland transfer-out market is higher than that of farmland transfer-in market; at the same time, there are many problems, such as fragmentation of rural land resources allocation, incomplete land property rights system, too powerful land security function, single land transfer pattern and unsound transfer system. Corresponding countermeasures are put forward as follows: unifying urban and rural planning, and adjusting distribution pattern of rural land in concert with the course of urbanization; improving land property rights system, so that the farmers have the land contractual management right with real right tendency; strengthening the legal construction of land transfer, regulating the land transfer process, and guiding regularized and legalized development of land transfer; promoting farmers' cognitive level, and establishing the intermediary platform to provide land transfer information, ensuring information symmetry between both sides of transfer; providing more non-agricultural jobs, establishing and improving social security system for farmers, and diluting the social security function of land.

Key words Agricultural modernization, Farmland transfer, Land contractual management right, Countermeasures, Sichuan Province

The 12th Five-Year Plan of China determines the policy orientation of developing modern agriculture and advancing agricultural modernization. Oriented by the development policies of agricultural modernization, carrying out the strategic adjustment of agricultural structure, rationally using agricultural resources, and accelerating the development of modern agriculture, has become an inevitable trend. The transfer of rural land, as a hot issue in the development of agriculture, is also a restricting issue in the development of agricultural modernization. Shi Weimin's study shows that in a similar environment for agricultural development in China, the governments of France and Japan adopt a series of reform measures to promote the transfer of rural land, achieving the scale management of agriculture and agricultural modernization^[1]. With learning from the foreign experience, we must rest on the status quo of the transfer of farmland in China. Previous studies have shown that there are many factors that affect farmers' will in the transfer of rural land^[2], the transfer pattern shows diversification^[3], and there is a shortage of intermediaries in the transfer process^[4]. To achieve moderate scale operation in the development of agricultural modernization, we analyze the basic information of the current China's farmland transfer on the basis of survey of 724 rural households in 21 townships of Sichuan Province, point out the existing problems in farmland transfer, and put forward cor-

responding policy recommendations.

1 The basic information of current China's farmland transfer

Through random sampling and stratified sampling, we select the survey sample, and finally get 724 valid questionnaires of 45 villages, 21 townships, 8 county-level cities, 4 prefecture-level cities in Sichuan Province. According to the results of the questionnaire, we sort out the basic information of the current farmland transfer from the following five aspects.

1.1 Allocation pattern of land resources and fragmentation of land The choice of allocation pattern of land resources is contradictory; choosing to keep the stability of the land management rights will lead to unfair distribution of land; choosing equitable land allocation pattern will reduce the long-term land input efficiency of farmers, affect farmers' enthusiasm in land investment. Table 1, 2 show that the existing land allocation pattern tends to keep the stability of land management rights (66.75%), but the farmers wish the land allocation pattern to be inclined to maintain fairness (49.59%). Among all land types, the fragmentation degree of arable land is the highest (0.860 8 mu/parcel).

1.2 The information of land transfer The land transfer mainly includes land transfer-in and land transfer-out, and information about transfer-out and transfer-in of land of farmers surveyed can be seen in Table 3. And it focuses on transfer-in and transfer-out of farmland, reaching 93.86% and 94.33%, respectively. As for the reason for some farmland having not been transferred out, the questionnaire results are shown in Table 4, and the survey results of reason for any farmland hav-

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ing not been transferred out by farmers can be seen in Table 5. Table 4, 5 show that the reason for some farmland having not been transferred out and any farmland having not been trans-

ferred out by farmers, is to grow food and vegetables for their own needs.

Table 1 The land resources allocation pattern and will of farmers surveyed

| Pattern | The proportion of existing pattern | The proportion of pattern wished |
|--|------------------------------------|----------------------------------|
| Allocating land resources according to number of people and making no adjustment with increase or decrease in number of people | 65.75 | 39.78 |
| Allocating land resources according to number of people and making adjustment with increase or decrease in number of people | 19.20 | 49.59 |
| Others | 10.22 | 5.25 |

Table 2 Fragmentation degree of land of farmers surveyed

| Land type | Area per parcel hm ² /parcel | Area per household hm ² /household |
|--|--|--|
| Farmland | 0.057 4 | 0.220 0 |
| Woodland | 0.095 3 | 0.191 6 |
| Grassland | 0 | 0 |
| Barren hills, waste valleys, barren hillocks and desolated beaches | 0.160 7 | 0.231 7 |
| Total | - | 0.336 4 |

1.3 Farmland transfer pattern The transfer pattern of farmland mainly includes subcontracting, leasing, doing farm work for others, exchanging, transferring, auctioning, becoming shareholder, inheriting, mortgaging, entrusting and other ways. In modes of transfer-in and transfer-out, there are mainly three modes (subcontracting, leasing and doing farm work for others). Transfer-in of farmland focuses on the mode of doing farm work for others, accounting for 66.67%, and transfer-out of farmland focuses on the mode of leasing, accounting for 48.23% (Table 6).

Table 3 Transfer-out and transfer-in of land of farmers surveyed

| Land type | Transfer-in of land | | Transfer-out of land | |
|--|-----------------------------------|----------------|-----------------------------------|----------------|
| | Number of households household | Composition//% | Number of households household | Composition//% |
| Farmland | 107 | 14.80 | 133 | 18.37 |
| Woodland | 2 | 0.27 | 4 | 0.55 |
| Grassland | 1 | 0.14 | 0 | 0 |
| Homestead | 0 | 0 | 0 | 0 |
| Barren hills, waste valleys, barren hillocks and desolated beaches | 1 | 0.14 | 2 | 0.28 |
| Others | 3 | 0.40 | 2 | 0.28 |
| Total | 114 | 15.75 | 141 | 19.48 |

Table 4 The reason for some farmland not to be transferred by rural households surveyed

| Option | Number of households//household | Composition//% |
|--|---------------------------------|----------------|
| Staying to produce food and vegetables for their subsistence | 32 | 4.42 |
| Nobody willing to take over the land | 14 | 1.93 |
| Others | 13 | 1.80 |

Table 5 The reason for farmland not to be transferred at all by rural households surveyed

| Option | Number of households//household | Composition//% |
|--|---------------------------------|----------------|
| Don't do much ado about nothing | 55 | 7.60 |
| Having ability to cultivate the soil | 289 | 39.92 |
| Farming bringing good returns | 52 | 7.18 |
| Having no intermediary to deal with related affair, and be afraid of trouble | 13 | 1.80 |
| Dreading fuss and bother | 10 | 1.38 |
| Having affection for farming | 28 | 3.87 |
| Difficult to find good job outside | 84 | 11.60 |
| Capable of meeting family's needs for food | 372 | 51.38 |
| Others | 125 | 17.27 |

1.4 Contract signing of farmland transfer and participation of the grass-roots organizations Subject to the limitations of the scope of transfer of farmland, the farmland is generally transferred in the village or in the group, and the both parties of transfer are acquaintances. The two sides consult with each other directly and privately to reach verbal agreement without approval by villages and groups. As shown in Table 7,

without approval by villages and groups, the transfer-in and transfer-out of farmland negotiated privately by both sides account for 83.33%, 45.39%, respectively; the transfer-in and transfer-out of farmland reaching verbal agreement account for 89.47%, 51.06%, respectively; the transfer-in and transfer-out of farmland that the grass-roots organizations participate in account for 14.92%, 46.81%, respectively.

Table 6 Composition of farmland transfer pattern of rural households surveyed

| Transfer pattern | Transfer-in of land | | Transfer-out of land | |
|---|--------------------------------|----------------|--------------------------------|----------------|
| | Number of households household | Composition//% | Number of households household | Composition//% |
| Subcontracting | 10 | 8.77 | 10 | 7.09 |
| Leasing | 23 | 20.18 | 68 | 48.23 |
| Doing farmwork for others | 76 | 66.67 | 44 | 31.21 |
| Reversing rent through inverse contract | 0 | 0 | 1 | 0.71 |
| Swapping | 3 | 2.63 | 2 | 1.42 |
| Transferring | 1 | 0.88 | 4 | 2.84 |
| Auctioning | 0 | 0 | 0 | 0 |
| Becoming shareholder | 0 | 0 | 9 | 6.38 |
| Inheriting | 0 | 0 | 0 | 0 |
| Mortgaging | 0 | 0 | 0 | 0 |
| Entrusting | 0 | 0 | 0 | 0 |
| Others | 1 | 0.88 | 3 | 2.13 |

Table 7 Contract pattern and transfer process of rural households surveyed

| Item | Classification | Transfer-in of land | | Transfer-out of land | |
|------------------|---|--------------------------------|----------------|--------------------------------|----------------|
| | | Number of households household | Composition//% | Number of households household | Composition//% |
| Contract pattern | Verbal agreement | 102 | 89.47 | 72 | 51.06 |
| | Written agreement | 9 | 7.89 | 57 | 40.43 |
| | Others | 3 | 2.64 | 12 | 8.51 |
| Transfer process | Mutual private negotiation without participation of villages and groups | 95 | 83.33 | 64 | 45.39 |
| | The intermediaries testifying it without participation of villages and groups | 0 | 0 | 5 | 3.55 |
| | Agreed by groups | 12 | 10.53 | 23 | 16.31 |
| | Agreed by villages | 5 | 4.39 | 43 | 30.50 |
| | Others | 2 | 1.75 | 6 | 4.25 |

1.5 Object, use and benefit of farmland transfer As shown in Table 8, the object of transfer-in of farmland is the individual farmers in other objects (82.46%); the use of transfer-in is mainly for growing grain (81.58%); the cost of transfer-in is generally compensating nothing (64.03%) and paying

cash (35.09%); the object of transfer-out of farmland focuses on company, cooperative organizations and large operation households (56.74%); transfer-out of farmland is mainly used for non-food crop production (58.16%), and the transfer-out generally has compensation (53.19%).

Table 8 Object, use and benefit (cost) form of farmland transfer of rural households surveyed

| Item | Classification | Transfer-in of land | | Transfer-out of land | |
|--|--------------------------------|--------------------------------|----------------|--------------------------------|----------------|
| | | Number of households household | Composition//% | Number of households household | Composition//% |
| Transfer object | Companies | 5 | 4.39 | 27 | 19.15 |
| | Cooperatives | 2 | 1.75 | 31 | 21.99 |
| | Large operating households | 13 | 11.40 | 22 | 15.60 |
| | Others | 94 | 82.46 | 61 | 43.26 |
| Transfer use | Growing grain | 93 | 81.58 | 59 | 41.84 |
| | Growing flowers | 0 | 0 | 16 | 11.35 |
| | Growing fruits | 3 | 2.63 | 17 | 12.06 |
| | Livestock and poultry breeding | 3 | 2.63 | 2 | 1.42 |
| | Aquiculture | 2 | 1.75 | 0 | 0 |
| | Non-agricultural operation | 0 | 0 | 12 | 8.51 |
| | Others | 13 | 11.41 | 35 | 24.82 |
| Transfer-out benefit (transfer-in cost) form | Cash | 40 | 35.09 | 71 | 50.35 |
| | Crops | 1 | 0.88 | 4 | 2.84 |
| | Non compensation | 73 | 64.03 | 66 | 46.81 |

2 Basic characteristics of farmland transfer and existing problems

2.1 Basic characteristics of farmland transfer

2.1.1 The rural land contractual management right is relatively stable. Table 1 shows that the farmers allocating land resources according to number of people and making no adjustment with increase or decrease in number of people, account

for 65.75%. According to the survey data, only 5.11% of rural households say that the land contractual management right is once redistributed, and 87.15% of rural households say that there is no adjustment in distribution of land resources in their villages or groups. In the survey of farmers' will of land adjustment, 49.45% of farmers do not want any adjustment; 23.07% of farmers want great adjustment, namely disarranging

all to go halves according to the number of people; 19.89% of farmers want tiny adjustment, namely only conducting small overhaul; 7.58% of farmers have other ideas.

2.1.2 The degree of development of farmland transfer-out market is higher than that of farmland transfer-in market. Table 3 shows that the proportion of farmland transfer-out households is higher than farmland transfer-in households. In terms of transfer-out pattern, the transfer-out of farmland is richer than transfer-in of farmland (Table 4), and the transfer pattern is in line with rational economic man characteristics of farmers under the market economic system. The development of transfer-out market of farmland tends to be legalized and formalized. Data in Table 7 show that the proportion of farmers who participate in transfer-out activities of farmland signing written contract is much higher than that of farmers who participate in transfer-in of farmland, and the intermediaries, villages, groups and other third-party organizations are generally involved in the transfer-out procedures. The farmers participating in transfer-in market of farmland lack sufficient understanding of land transfer. The land transfer is mainly confined to the transfer between the villagers, land is generally used to grow food, and the cost of transfer-in is zero in general, which obviously runs afoul of rational economic man characteristics of farmers, resulting in inefficient land allocation. The degree of development of transfer-out market of farmland is relatively high, and the purpose of farmers participating in transfer market is to obtain higher returns. The transfer is not only limited to the primary industry, but also related to the secondary and tertiary industries. And they have strong desire transfer the land towards the secondary and tertiary industries.

2.2 Problems existing in farmland transfer

2.2.1 The fragmentation degree of rural land is high. According to the survey of Rural Fixed Observation Office, the Ministry of Agriculture in 2003, the fragmentation degree of China's farmland is 0.087 6 hm²/parcel; the later survey results in the eastern regions show that the fragmentation degree of farmland has been increased to 0.076 9 hm²/parcel^[5]; the recent survey of this study shows that the fragmentation degree of farmland in Sichuan Province is higher, reaching 0.057 4 hm²/parcel. Land fragmentation has increased the cost of production, wasted valuable land resources, and reduced the effective area of farmland. On the contrary, if we lower the fragmentation degree of farmland, the total factor productivity will be promoted^[6-8]. With the accelerated process of urbanization, the allocation pattern of farmland will be inevitably adjusted. Although within a short period, it promotes the allocation efficiency of land, but it reduces long-term efficiency of farmers' input in the land, and the land adjustment may further exacerbate fragmentation of land^[9]. The land fragmentation reduces the significance of the transfer of farmland, resulting in low efficiency or null efficiency of agricultural production, dealing a blow to the transfer enthusiasm of farmers.

2.2.2 Relatively centralized transfer pattern and incomplete land property rights system can not reflect the property nature of the land contractual management rights. To promote the de-

velopment of farmland transfer market, many scholars have proposed to invest the land contractual management right with real right tendency^[10-12]. But in the transfer patterns in Table 6, the transfer pattern concentrates in subcontracting, leasing and doing farm work for others, and no farmer uses auctioning, mortgaging, inheriting, entrusting and other ways to transfer land. The property rights of farmland transfer market are weakened or mutilated. The likely reason is that the farmers are more concerned about the rights which can have a rapid impact on them, such as the right to determine the range of products and market price of products, rather than some abstract rights like land mortgaging right and inheriting right^[13].

2.2.3 The farmland transfer system is not sound, the transfer process lacks standardization, and there is a shortage of necessary intermediary organizations. The transfer of farmland lacks standardization, which is rife in the land transfer behavior^[14]. Data in Table 7 show that as for the farmers who transfer the farmland in, 89.47% of farmers have not signed written agreement, only the verbal transactions; as for transfer-out behaviors of land, there are many farmers who sign written agreement, reaching 40.43%. The transfer is generally resolved through consultation by both parties in private, without approval by the villages and groups. The transfer carried out by the intermediary organizations which provide information is even rare, and only 3.55% of the farmers in the transfer-out activities fall into this category.

2.2.4 The farmland transfer use lacks supervision and the farmers tend to grow non-food crops in their farmland, influencing food security. *Rural Land Contract Law* provides that as to the transfer concerning farmland, after the transfer, the land must be used for agricultural production, and must not be used for the secondary and tertiary industries; if we need to change the use, we have to seek the consent of the landowners and obtain approval by the relevant departments.

Table 8 shows that the proportion of farmland transferred out for non-agricultural industrial operation is 8.51%. Due to rent-seeking behavior of the grass-roots organizations, the village cadres will induce or force farmers to transfer the land to non-agricultural industrial operators, in order to share benefits, make use of farmers' inadequate understanding of land transfer policy. In addition, due to low marginal revenue of the food production, the farmers tend to grow non-food crops, and if giving the reins to this trend, it might endanger food security. Our survey shows that 58.16% of farmland transferred out is used for non-food crop production. Currently, the farmers tend to grow non-food crops in their farmland, influencing food security. The study of Li Ting also shows that, before and after the land transfer, the planting proportion of food crops has declined by 30.42%, and the farmers conspicuously tend to grow non-food crops in their farmland^[15].

2.2.5 Farmers lack sufficient understanding of participating in farmland transfer and their transfer behaviors act contrary to characteristics of rational economic man. Chayanov holds that the products produced by peasant family are mostly used to meet the family needs, but not pursue the maximal market prof-

its^[16]. So the farmers have inadequate understanding of obtaining benefits from participating in farmland transfer. From the transfer gain and cost in Table 5, the gratuitous way accounts for a large proportion, deviating from the rational economic man characteristics of farmers in pursuing the maximal benefit. At the same time, this phenomenon also hinders the degree of marketization development of farmland transfer market.

2.2.6 The farmers have deep affection for land and the land security function is too powerful. This issue is rife in the current rural areas. To promote the transfer of farmland, we must change the awareness of farmers on the land^[17-20]. The survey data in the study also show that amongst the reasons for having not transferred any land out or unwilling to transfer land out by farmers, engaging in agricultural production to meet the household needs, accounts for a large proportion (Table 2), indicating that the security function of farmland is too strong, inhibiting the development of farmland transfer market.

3 Countermeasures and proposals for regulating farmland transfer

3.1 Unifying urban and rural planning and adjusting distribution pattern of rural land in concert with the course of urbanization

The stable land contractual management right can literally promote the long-term input efficiency of farmers' land, but if we do not consider the negative effects of the national food policies on farmers' investment incentives (that is, the state is only concerned about the food output reaching a level of safety and protecting the urban residents from the impact of increase in the price of agricultural products, limiting the range of farm production and market decisions, and limiting farmers' use of existing resources to maximize profits), the analysis of the stability in China's land use rights has not much significance^[21].

According to views of Condliffe, and Rosenstein-Rodan, industrialization is an effective way to solve overpopulation and increase national income in economically backward areas^[22]. At present, China is also in the process of propelling simultaneous development of urbanization and industrialization, and the distribution pattern of rural land still needs to be constantly adjusted. But in order to ease the triple constraints of population, resources and environment in urban and rural areas, unifying urban and rural development planning is necessary. The regions planned for urbanization need great adjustment in land allocation pattern, while the regions used for agricultural development only need partial adjustment. Thus, in the current situation, completely stabilizing rural land contractual management right is not desirable. Although many economists believe that China's long-term development requires long-term stability of land management rights and improvement in land use efficiency and land management mechanism^[23], we believe that before the level of urbanization tends to be mature, the frequency and scale of land adjustment is still high and large, therefore, a long-term sustainable unified urban and rural development planning can not only improve the efficiency of resource allocation, but also solve many of the existing social problems.

3.2 Improving land property rights system, so that the farmers have the land contractual management right with real right tendency

Thrainn Eggertsson once described like this: the ownership in a narrow sense, the right to use, usufruct, the right to dispose of and transfer rights constitute complete property rights^[24]. The survey data in this study show that farmers do not have real land property rights, therefore, the state should modify some provisions of the *Rural Land Contract Law*, to promote the formation of market mechanism of land use right transfer, so that the farmers have the land contractual management right with real right tendency, and farmers become the real main body of transfer, having land contractual management right with real right tendency.

3.3 Strengthening the legal construction of land transfer, regulating the land transfer process, and guiding regularized and legalized development of land transfer

The transfer of rural land is not standardized, because there is no transfer system completely in accordance with the actual situation of the regions. By strengthening the legal construction of land transfer, we should make all regions crystallize the rights and obligations of the two parties of transfer contract, and clearly stipulate the lifetime of transfer, transfer mode, compensation for the breach of a contract and other provisions, according to local actual situation.

For those who randomly change the land use, we must lawfully investigate the relevant parties' legal liabilities. We can use economic and legal means to constrain the transfer behavior, so that the land transfer market tends to be standardized. In addition, we should establish and improve the management mechanism of the land transactions, If lacking management, in order to avoid risks, the farmers might transfer the land management rights to relatives, friends or neighbors^[25], hindering the effective allocation of land resources.

3.4 Promoting farmers' cognitive level and establishing the intermediary platform to provide land transfer information, ensuring information symmetry between both sides of transfer

Due to the constraints of the cognitive level and asymmetric information, the farmers are always at a disadvantage in the game with the grass-roots organizations and non-farmer contractors. The rent-seeking behaviors of the grass-roots organizations make them exert improper interference with farmland transfer, so that the farmland transfer market fails to reach the Nash equilibrium, resulting in inefficient allocation of land resources^[26]. If strengthening publicity and education of knowledge concerning land transfer, enhancing the cognitive level of farmers on the land transfer, and at the same time, establishing transfer platform and intermediary organizations, the farmland transfer market may reach a state of perfect competition in the case of symmetric information, so that the allocation of land resources achieves high efficiency.

3.5 Providing more non-agricultural jobs, establishing and improving social security system for farmers, and diluting the social security function of land

To achieve effective transfer of rural surplus labor force, increasing non-farm

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al network and to succeed in undertaking.

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employment opportunities is a desirable way. Organically combining the transfer of rural labor and the transfer of land use right, is of practical significance to improving the dual social structure in urban and rural areas, and solving the issues of vast population and limited farmland in rural areas. Meanwhile, the state should gradually achieve unification of the rural and urban system, and establish the gradually unified social security system in urban and rural areas including health care, pension, minimum subsistence security and so on, so that the farmers realize that the farmer is only a career, but not a group taking the land as living security. Thus, the farmers can liberalize the land management rights, and engage in free trade as rational economic man in the transfer market, to achieve the Nash equilibrium of farmland transfer market in the true sense.

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