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Explanation of the Phenomenon "Different Prices on the Same Land" in the Farmland Transfer Market—Evidence from China's Farmland Transfer Market

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Abstract: The purpose of this study was to investigate the differences in farmland rent prices between land transferors and different transferees when considering the quality supervision cost of the transferred farmland. Moreover, the impact of the intervention of township governments, village committees, and other intermediary organizations on the rent price differences is also taken into consideration. The treatment effect model (TEM) and grouping regression model were used. The results showed that: (1) Owing to the different transaction costs, when leasing to village transferees, the land rent was significantly lower than when leasing to non-village transferees. (2) With the intervention of intermediary organizations, such as township governments and village committees, the constraints of the reputation mechanism between acquaintances were weakened, and the cost of information identification when land transferors searched for out-of-town transferees was reduced. As a result, the differences in land rent when transferring to the village and non-village transferees were narrowed. This study presents a different view to explain the transaction characteristics of the rural land transfer market in China. Further, it is of paramount importance to implement an effective public intervention, including strengthening the intermediary role of township governments and village committees, which is conducive to improving the rural land transfer market of most developing countries, including China.

Keywords: land transfer; farmland quality supervision cost; rent difference; intermediary organization

1. Introduction

A perfect farmland transfer market helps to improve the efficiency of resource allocation [1,2], and reasonable rent is relatively critical to the farmland transfer market [3]. If farmland is regarded as a single factor of production, theoretically, the due price of farmland transfer can be obtained according to factors such as farmland quality, location, input and output, supply and demand [4–6], and the efficient allocation of farmland can be realized through the price mechanism. However, in practice, it is found that "different prices on the same land" is a common phenomenon in the farmland transfer market. That is, it can be observed that the farmland rent lower or higher than the market price coexist in a certain period, even though in the same location and with the same factors such as farmland quality. There is much literature that verifies this phenomenon. Jiang et al. (2013) investigated China and found the stratification of farmland transfer rents due to different transferees [7]. There were obvious differences in the rents transferred to the village and non-village transferees and cooperatives. The findings of Promsopha (2015) in rural Vietnam indicated that the rent of land transfer between acquaintances was lower than that between strangers [8]. According to this phenomenon in the farmland transfer market, there may be a market failure that the land rent does not match the use value of the farmland, which is not conducive to the concentration of farmland resources to operators with higher utilization efficiencies. Therefore, it is necessary to excavate why the above

phenomenon occurs in China's farmland transfer market and what inspirations can be drawn for the policy formulation of other developing countries.

The phenomenon of "different prices on the same land" has been paid wide attention to and has been explained from different angles by the existing literature. Some scholars held that farmers had to burden high transaction costs when trading with strangers in the imperfect farmland transfer market [9–11]. Therefore, they tended to transfer among acquaintances to reduce transaction costs, indicating an obvious non-market pricing mechanism [12,13]. This may be because, in the rural land transfer market embedded with local social relations, relatives or friends who transfer into land with low rent provide other reciprocal behaviors in daily life for the transferors [8]. Ghebru et al. (2014) introduced the utility of social relationships into the farmers' decision-making model and argued that the essence of free circulation was that farmers replaced implicit relationship rent for explicit monetary or physical rent [14], thus reflecting the differences in rent price. In addition, the finding of Bryan et al. (2015) indicated that there was a close link between rent and the security of farmland property rights and the risk aversion of reclaiming farmland [15]. For example, due to the lack of safe land certificates and effective transfer dispute arbitration institutions, farmland cannot be recovered in sufficient quantities on schedule. However, farmland property rights would become more secure when the land transferees are local farmers bound by their reputation within villages, which strengthens the transferees' negotiation ability and lowers the land rent [11]. Xu and Hyde (2019) found that transferors would choose to deliver part of the rental income to reduce the risk of recovering farmland, due to their control preference [16]. Especially for suburban farmers with non-agricultural expectations for farmland, transferors are more likely to lease to trustworthy people for free in order to be able to recover farmland in time with the consideration of property right risk.

However, many countries have endowed farmers with relatively stable farmland property rights, which ensure the recovery of farmland. Therefore, there may be theoretical deficiencies in explaining the rent differences with property rights security. In fact, great importance is attached to the quality of farmland by transferors, because farmland is one of the farmers' most important assets [17,18]. Nevertheless, farmers may engage in predatory production after transferring into farmland, thus destroying the quality of the farmland [19]. More seriously, it is difficult for the transferors to supervise the operating process of the transferees due to the fixity of land parcels and the complexity of agricultural production. (Even though the terms of farmland quality are negotiated by both parties when signing the contract, in reality, farmland transfer contracts are incomplete due to the influence of transaction costs and the limited rationality of both parties. Therefore, it is particularly common to observe various imperceptible opportunistic behaviors of transferees. In other words, no matter how stipulated it is in the contract terms, the FQSC of transferors always exists.) Indeed, the transferees' concern for the quality of farmland can be understood, not just as an invisible cost that cannot be observed and quantified but one which does actually exist, which is the "farmland quality supervision cost" (FQSC) defined in this paper. Thereby, this paper attempts to explain the reasons for the phenomenon of "different prices on the same land" which widely exists in the transfer market in China, from the view of FQSC, in order to fill a gap for relevant theoretical studies. More importantly, FQSC is considered a crucial obstacle to the price mechanism of farmland transfer, so our paper can also provide a meaningful reference for other developing countries with an incomplete farmland transfer market.

Compared with the existing literature, the marginal contribution of this paper is as follows. First, this paper attempts to explain the phenomenon of "different prices for the same land" in the farmland transfer markets of various countries with the concept of farmland quality supervision cost, in order to fill the gap in relevant theoretical research. Second, this paper uses large-scale survey data across China to conduct empirical tests, which not only answer the question in China but also provide a meaningful reference for other developing countries with imperfect farmland transfer markets.

The remainder of this paper is structured as follows: the second part introduces the materials and methods, the results and discussions are presented in the third and fourth parts, respectively, and the last part presents the conclusions and policy recommendations.

2. Materials and Methods

2.1. Theoretical Mechanism

Referring to Taylor et al. (2018) [20], we first assume that there are only two types of transferees in the farmland transfer market, one is a local person *A* and the other is an external person *B*. The market rent of farmland transfer is denoted by *p*, the long-term productivity of farmland is represented by *l*, and the transferor's cost of supervising the behavior of transferee farmland protection and other aspects affecting the long-term use of the farmland is denoted by *c*. As for the transferees, they are probably willing to pay higher rent. However, they may adopt the excessive application of chemical fertilizer or other predatory operating behavior [21], to maximize the productivity of the farmland to ensure operating income, without taking the long-term maintenance of farmland quality into account. However, the transferors will balance the rents received in the transfer and the cost of monitoring the farmland quality simultaneously, to guarantee the long-term use value of the farmland thereby maximizing the transferor's utility. It is relatively difficult for transferors to supervise the transferee utilization behavior of farmland due to the complexity of agricultural production. In particular, for transferors who live far from their contracted land (Under the institutional arrangement of "hybrid allocation of good and poor quality farmland" in China, it is very common for farmers to live far away from their contracted land), the supervision cost may be higher. Moreover, the transferors have the absolute ability to observe and monitor the operating behavior of different transferees to the same extent because of the immobility of farmland [11], which indicates that the supervision cost of the transferors is the same no matter who the transferees are.

In light of the principle of utility maximization, after introducing FQSC, the following household model can be set:

$$Max\ (U) = U\ (p, l(c)) \tag{1}$$

It is first considered that transferors choose to lease farmland to the local transferee *A*. Farmers in the same village generally have similar farming habits, and the use of chemical fertilizers and pesticides [22], indicating the low probability of a local transferee indiscriminately applying chemical fertilizers and pesticides. Moreover, a high degree of interdependence is gradually formed due to the long-term frequent communication between transferors and transferees in closed rural communities, which is conducive to establishing common social norms and the reputation mechanism. Specifically, the incentive and punishment effects play critical roles in the formation of effective performance assurances [23,24]. Thus, the supervision cost of farmland operations of the local transferee *A* is accordingly low. Accordingly, the following model is designed:

$$\frac{\partial c}{\partial r_A} < 0 \tag{2}$$

where the FQSC of the transferor is denoted by *c* and the reputation mechanism constraint between the transferor and local transferee *A* is represented by r_A.

With the continuous expansion of the scope of the current farmland transfer market, transferors can also choose to lease farmland to transferees outside of the village. However, there is no reputation mechanism constraint formed in the acquaintance society between the above transferees and transferors, thus precluding the transferees' behavior of damaging farmland quality from being severally punished by the acquaintance society. Hence, it becomes an appropriate option for a transferor to spend large amounts of money and time searching for or identifying a more reliable external transferee, *B*, to reduce the supervision cost (Generally speaking, the transferees are more active market players, thus the search cost here more specifically refers to the transferor's screening cost for transferees outside

of the village). In other words, the FQSC, *c,* of transferors is a function of the reputation mechanism constraints of transferees and the cost of transferors seeking or screening the reliable transferees, both of which are substitutes, theoretically. Consequently, model 3 is developed as follows, and based on model 1:

$$Max\ (U\ ) = U\ (p, l(c(r,s))) \tag{3}$$

In order to reduce the FQSC, the transferors need to bear more of the search cost in looking for potential transferees with a good reputation outside of the village. Therefore, we can get the following model:

$$\frac{\partial c}{\partial s_B} < 0 \tag{4}$$

Clearly, the choice of transferees depends crucially on the rental revenue *i* and the FQSC $l(c(r,s))$. The principle of the transferor's selection is to maximize their income, meaning higher rent after considering the FQSC:

$$[I_A = i - (r_A + s_A)] \geq [I_B = i - (r_B + s_B)] \tag{5}$$

When the transferors choose the local transferee *A*, r_A is greater than 0 and s_A is equal to 0 because of the strong reputation mechanism and negligible searching cost in the village. When the external transferee *B* is selected, r_B is equal to or less than 0, and s_B is greater than 0.

Accordingly, we reset the following model based on model 5:

$$[I_A = i - r_A] \geq [I_B = i - s_B] \tag{6}$$

The transferors may contract with local transferees when s_B is greater than r_A. Moreover, the reputation mechanism provides incentives for farmland quality protection and makes it more difficult for competitors to enter the transfer market, thus forming a monopoly profit. Therefore, the local transferees end up spending less on rent to obtain the management right of farmland.

Based on the above analysis, we propose Hypothesis 1: given the FQSC, the rent level of leasing farmland to local transferees is lower than that of leasing to external transferees.

Recently, in many countries such as China, third-party organizations (township governments and village committees) commonly intervene in the land transfer market since scale operation has gradually become a policy choice for governments at all levels to promote agricultural modernization. As mentioned above, the rent difference between the acquaintance society and the non-acquaintance society represented by native villages and villages outside, respectively, is formed by the FQSC, which is specifically reflected in the reputation mechanism, r_A, in the acquaintance society, and the search cost, s_B, in the non-acquaintance society.

$$[I_A = i - r_A] = [R_B = i - s_B] \tag{7}$$

Under the involvement of third-party organizations in transferring farmland, on one hand, the credibility established by township governments depends on authority, and the binding force of the village committees under the familiar social norms has formed the substitution effect on the internal reputation mechanism of the acquaintance society by generating institutional trust to a certain extent. On the other hand, the transfer information platform set up by township governments or village committees can reduce the transferor's capital and time costs in finding reliable transferees from outside of the village. Furthermore, third-party organizations can use the advantages of collective actions to impose restrictions on transferee behavior in the destruction of land resources. In other words, it is the intervention of third-party organizations in the transfer that weakens r_A and s_B. Thereby, the rents of the two types of transferees will gradually converge to the market rent *p*.

Therefore, we propose Hypothesis 2: when the farmland transfer is intervened by third-party organizations, the rents of leasing to native transferees and external transferees will converge.

2.2. Data and Variables

This study uses the China Household Finance Survey (CHFS), which was conducted by the Southwest University of Finance and Economics in 2017. Firstly, the counties of China were divided into 10 levels according to per-capita GDP, and the representative counties were randomly chosen from each level. Then, particular villages (or communities) and households were randomly chosen from the sample counties and sample villages (or communities) successively. The total sample of CHFS data in 2017 enumerated 37,341 sample families involving 29 provinces (excluding Xinjiang or Tibet), 353 counties, and 1373 communities or villages, of which the rural sample comprised 11,635 farmers.

In light of our focus on the rent decision in the farmland transfer market, this paper selects farmland transferors as the analysis objects, the reason for which is that transferors will negotiate with transferees on the rent price due to the FQSC in the theoretical analysis. Clearly, the transferors are treated as the main actors of inquiry. On the contrary, the transferees need to respond to the inquiry of the transferors. Specifically, this paper only retains the household samples who transfer out farmland planted for grain and cash crops and excludes the samples with missing or abnormal values of key variables. The final sample taken in this paper covers 2118 households after data processing and screening.

Based on the above data, the variables we selected are presented as follows.

1. The object of farmland transfer. In the CHFS questionnaire of 2017, the question "whom is the farmland transferred to?" was designed, the options of which included ordinary farmers in the village, ordinary farmers outside of the village, leading specialized households, etc. Considering that leading specialized households, etc., may also exist in the local villages, we only retained the samples of "ordinary farmers in the village" and "ordinary farmers outside the village" to define the objects of transfer transactions more clearly. Drawing on the existing studies, we set the object of farmland transfer as a binary variable, which had a value of 1 if the local farmers transferred into farmland, and 0 if transferees were from outside of the village.

2. The rent price of farmland transfer. The average rent price per mu of transferring farmland was used to measure "the rent price of farmland transfer" [25]. Since crops are taken as rent in some areas, we converted all of them to specific amounts, to ensure the consistency of the analysis.

3. Other explanatory variables. To improve the accuracy in the estimates, some control variables were introduced into the model, including the characteristics of household head and family, farmland status, transaction costs of transferring farmland, and village-level fixed effects [11,14,26–28]. The characteristics of the household head included demographic characteristics such as age, gender, and education level. As for the characteristics of the family level, social capital and physical capital may influence the object of farmland transfer and rent at the same time. We used "whether family members have village cadres" to measure the social capital of farmers' families, and "whether the family has a car and the number of family deposits" to measure physical capital. Referring to Ma et al. (2015), "whether the farmland contract is signed" and "whether the farmland is expropriated" were adopted to describe the situation of farmland property rights [22]. Meanwhile, the transaction cost of farmland transfer was chosen as a control variable. If it takes a long time to reach the circulation or if there is a dispute over the circulation, the two sides will negotiate on it, which eventually affects the rent prices. The definition and description of variables are presented in Table 1.

Table 1. Definition and Description of Variables.

Variable	Definition	Mean	SD
Rent per mu	Ln(farmland transfer price) (Yuan)	3.465	2.976
Object of farmland transfer	Local transferee = 1; Out-of-village transferee = 0	0.712	0.453
Age of household head	Actual age	51.048	9.384
Education of household head	Illiteracy = 1; primary = 2; middle = 3; high = 4; college = 5	2.889	0.644
Does the family have village cadres?	Yes = 1; no = 0	0.017	0.127
Number of family deposits	Ln(family deposits) (Yuan)	1.538	3.591
Does the family have a car?	Yes = 1; no = 0	0.089	0.282
Is the farmland contract signed?	Yes = 1; no = 0	0.645	0.479
Is the farmland expropriated?	Yes = 1; no = 0	0.112	0.315
Who gets the farmland subsidy?	Transferor = 1; transferee = 0	0.769	0.421
Is there a dispute in circulation?	Yes = 1; no = 0	0.040	0.196
Time to achieve circulation	Number of months to achieve circulation	1.292	0.883

2.3. Estimation Strategy

This paper aims to capture the influence of the objects of farmland transfer on the rent, and the following equation is specified:

$$\ln(Rent) = \alpha_1 O_i + \alpha_2 X_i + \varepsilon_i \tag{8}$$

where $\ln(Rent)$ denotes the logarithm of the average transfer price per mu; O_i represents the object of farmland transfer; X_i denotes a vector of control variables; and ε_i is a residual term.

Ordinary least square (OLS) regression can be directly used in Equation (8) to investigate the impact of different transferees on the rent when O_i is exogenous. However, how transferors choose different transferees depends on many factors, namely the latent variable (O_i^*). According to the above theoretical analysis, there may be an obvious difference in rent prices when transferors lease farmland to different objects, if the FQSC is considered. Nevertheless, from the view of causality, it is also possible that the low rent of farmland transferred to the local farmers increases the transferor's willingness to transfer farmland to the transferee outside. Hence, the transferee's choice of the object of farmland transfer may be an endogenous variable for the decision of rent. In other words, the self-selection of the transferors practically shapes the choice of different trading partners, which is shown as follows:

$$O_i^* = Z_i \eta_1 + \varepsilon_i$$

$$O_i = \begin{cases} 1, & \text{if } O_i^* > 0 \\ 0, & \text{if } O_i^* \leq 0 \end{cases} \tag{9}$$

The unobservable information respectively involved in the error term ε_i of Equations (8) and (9) may exert a significant impact on selecting transaction objects and rent prices simultaneously, resulting in the correlation of the two error terms and the subsequent deviation of the estimated coefficients.

To overcome the above selectivity deviation, this paper employs the treatment effect model (TEM), which consists of two stages to estimate the impact of the transfer objects on the rent prices. The selection equation of the first stage investigates the influencing factors of how transferors select different objects; the rent equation of the second stage tests the effect of the transfer objects and other control variables on rent prices. Indeed, the self-selection problem can be avoided by using the TEM. Meanwhile, the estimation results of the TEM can directly reflect the marginal effect of choosing different transferees on rent prices, compared with other causal inference methods.

It is worthwhile finding a suitable instrumental variable for ensuring the recognition of the TEM. A valid tool variable is not only related to the selection of transferees but is also irrelevant to the rent prices of farmland transfer and in the case of unobservable factors. Referring to Holden et al. (2011), the farmland transfer markets in villages affect farmers' participation in farmland transfers and their behaviors but do not directly influence the

rent price [3]. As a result, the development of the farmland transfer market is considered a suitable instrumental variable for farmers' farmland transfer. Therefore, "the rate of farmland transfer in the village where the transferor is located" is chosen as the instrumental variable. More crucially, the estimation of 2SLS shows that the instrumental variable has good externality and there is no problem with weak instrumental variables.

3. Results

3.1. Benchmark Regression

For comparison, the regression results of the OLS were first reported. Before the OLS regression, we conducted a variance inflation factor (VIF) test, which indicated that the multicollinearity problem does not exist in the data. Meanwhile, the robust standard error was used for avoiding the possible heteroscedasticity problem, and the difference at the village level was also controlled. As shown in column 1 of Table 2, the estimated coefficient of the objects of farmland transfer on rent is significantly negative after adding control variables and controlling the village-level fixed effects in the OLS estimation. Obviously, the rent prices from transferring farmland to local transferees are significantly lower than when transacting with transferees from outside of the village.

Table 2. Impact of the objects of farmland transfer on rent.

	(1)	(2)	(3)	(4)	(5)
	OLS	**TEM: Two-Step Method**		**TEM: MLE**	
		Object Selection Equation	**Rent Determination Equation**	**Object Selection Equation**	**Rent Determination Equation**
Object of farmland transfer	−2.500 ***		−5.327 ***		−8.304 ***
	(0.124)		(0.474)		(0.082)
Age of household head	0.016 *	−0.000	0.012	0.001	0.010
	(0.008)	(0.004)	(0.009)	(0.003)	(0.011)
Education of household head	−0.036	−0.029	−0.012	−0.025	0.033
	(0.114)	(0.058)	(0.122)	(0.045)	(0.152)
Does the family have village cadres?	0.282	0.074	0.309	0.157	0.337
	(0.408)	(0.233)	(0.508)	(0.194)	(0.635)
Number of family deposits	0.013	−0.015 *	−0.003	−0.004	−0.018
	(0.018)	(0.009)	(0.019)	(0.007)	(0.024)
Does the family have a car?	0.620 ***	−0.102	0.410 *	−0.021	0.213
	(0.231)	(0.112)	(0.245)	(0.089)	(0.304)
Is the farmland contract signed?	−0.027	−0.386 ***	0.165	−0.038	−0.085
	(0.118)	(0.067)	(0.148)	(0.048)	(0.163)
Is the farmland expropriated?	−0.452 **	−0.250 ***	−0.683 ***	−0.285 ***	−0.905 ***
	(0.183)	(0.095)	(0.208)	(0.074)	(0.257)
Who gets the farmland subsidy?	0.652 ***	0.020	0.674 ***	0.143 **	0.713 ***
	(0.137)	(0.073)	(0.154)	(0.057)	(0.192)
Is there a dispute in circulation?	−0.628 **	0.299 **	−0.248	0.136	0.119
	(0.285)	(0.149)	(0.337)	(0.122)	(0.416)
Time to achieve circulation	0.141 **	−0.234 ***	−0.122	−0.139 ***	−0.388 ***
	(0.068)	(0.033)	(0.085)	(0.027)	(0.093)
Circulation rate of the village		−2.105 ***		−0.387 ***	
		(0.163)		(0.066)	
Village fixed effect	YES	YES	YES	YES	YES
cons	5.377 ***	1.166 ***	6.982 ***	0.490	8.799 ***
	(0.871)	(0.447)	(1.000)	(0.352)	(1.195)
R^2	0.202				
F value	61.619				
Wald test			391.6 ***		10,382 ***
N	2118		2118		2118

Note: *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively; robust standard errors are shown in parentheses.

Table 2 presents the estimated results of the TEM. In column 2, the regression results of the object selection equation show that the experience of land expropriation has a negative effect on the transferors' choices in transferring farmland to the local transferees at the 1% level. A possible explanation for this is that the land expropriation represents the

unstableness of farmland property rights, which is perceived more obviously by the farmers living in the same village, thereby impeding the realization of the transaction between local transferors and transferees. Moreover, according to the regression results, transferors are more willing to transfer their farmland to the local farmers when the subsidies relating to the farmland belong to the transferors and it takes longer to achieve the farmland transfer. These results are consistent with the conclusions of Huy et al. (2016) [11], indicating that the longer the time taken in reaching the transfer, the higher the transaction cost of the transfer, which explains the phenomenon of transferring farmland between acquaintances in China.

The regression results of the rent determination equation in adopting the two-step method and MLE, respectively, are shown in column 3 and column 5 of Table 2. Generally, the error of the first step is brought into the second step in the two-step estimation, causing the reduction in its estimation efficiency which is lower than that of the MLE. Based on the estimation results of the MLE, the rent transacted between transferors and local transferees is significantly lower than that between transferors and out-of-village transferees at the 1% level, after controlling the characteristics of household head, family, farmland property rights, and transfer contracts, transaction cost and village fixed effect, which indicates that Hypothesis 1 is verified. In general, this finding is inconsistent with the research of Qiu et al. (2022), which focuses on the market-oriented characteristics of the current circulation of acquaintances driven by the profit-making motivation of the transferees [29]. However, more attention is devoted to the difference in rent when the FQSC is taken into account in this paper, especially the impact of the reputation mechanism constraints and the search cost on the rent. Meanwhile, we use the sample of the farmland transferors rather than the transferees, the reason for which is not the less important status of the transferees in the farmland transfer, but the logic of the theoretical analysis of this paper. In reality, an expected price is generated by the transferors out of the consideration of the FQSC when negotiating with different transferees, and a game will be conducted between this price and different transferees where the behavior of the transferors is more active. Hence, the inconsistent conclusions between this paper and the previous literature may provide a new theoretical perspective for existing research.

In the result equation of rent determination, the transfer rent is lower when farmland has been expropriated because of the different protection functions of different property rights arrangements. There may be significant differences in the transferees' production and investment behavior and income expectation based on the unsecured property rights [22], resulting in a different transfer rent. Moreover, the longer the transfer takes, the higher the transaction cost of farmland transfer, which is not conducive to transferring farmland. The rent will be higher when the farmland subsidies belong to the transferors, which is consistent with the finding of Nathan et al. (2012), which indicates that agricultural subsidies may directly increase farmland rent [30]. A further explanation is given by this paper in that the ownership of farmland-related subsidies is often key to the negotiation between the two sides in the process of circulation. The ownership of subsidies to the transferors indicates their stronger bargaining power and more inquiry initiatives, which finally increase the transfer rent.

3.2. Robustness Tests

1. Robustness test 1: removing the sample of cash crops. In the process of data processing, the samples using transferred farmland for planting food and cash crops are retained in the whole sample. However, according to classical land rent theory, the crop varieties on the land can have a critical impact on the rent. In general, grain prices are relatively close, so the sample of non-grain cultivation is removed. The TEM is still adopted for regression, the results of which are shown in column 1 of Table 3. The results present that the rent of farmland transferred out to the local transferees is still significantly lower than that transferred out to the out-of-village transferees after

excluding the samples of cash crops. Therefore, the result of benchmark regression is robust.

2. Robustness test 2: increasing control variables. In light of the great influence of the quality of land parcels on the transfer rent, according to the classical land rent theory, the transfer rent is affected by the heterogeneity of farmland in location and fertility [6]. Unfortunately, the survey data of CHFS in 2017 failed to refine the quality of specific plots and so this paper further controls the quality characteristics of the largest cultivated land of households based on the setting of the benchmark model. Although the specific quality of different plots may be different, the quality of farmland in the same area is generally similar, promising the reasonability of our method. The results in column 2 of Table 3 indicate that the coefficient of the transferees decreases slightly after controlling the characteristics of farmland quality, but it still negatively affects the transfer price. This further verifies the reliability of the conclusions of this paper.

3. Robustness test 3: adopting conditional mixed process (CMP) to re-estimate. As the endogenous variable, the transfer object is a binary dummy variable; this paper further employs CMP to test the endogenous problem. Firstly, "the transfer rate in the village where the transferor is located" is still used as the instrumental variable, and its correlation with the endogenous variable is estimated, the results of which are brought into the benchmark model for regression. It is found from the CMP regression that the coefficient of the instrumental variable and atanhrho_12 are both significant, inferring that the results of the CMP are credible. The regression results in column 3 of Table 3 infer that the benchmark regression results are still robust after changing the estimation method.

Table 3. Robustness tests.

	(1)	(2)	(3)
	Excluding Cash Crops Samples	Increasing Control Variables	CMP Re-Estimation
Transfer object	−8.002 ***	−7.935 ***	−8.287 ***
	(0.094)	(0.096)	(0.084)
Control variable	YES	YES	YES
Village fixed effect	YES	YES	YES
observed value	1387	2118	2118

Note: *** denotes significance at the 1% level; robust standard errors are shown in parentheses.

4. Discussion

The core point of the above analysis is that the relationship between the transaction objects can have an important impact on the transfer rent. This is in line with the findings of Huy et al. (2016) in Vietnam [11], and Tang et al. (2019) in China [31]. However, compared to the existing studies, a further question that our paper wants to answer is what impact the involvement of third-party organizations such as the government and village committees may have on the transfer rent of farmland.

Accordingly, the rent of transferors leasing farmland to different transferees converges when third-party organizations are involved in the farmland transfer. Thus, whether the intervention of third-party organizations plays a moderating role in the impact of transfer objects on transfer rent needs to be assessed. Since the key independent variable "transfer object" and the moderation variable "whether intermediary organizations intervene in farmland transfer" are categorical variables, the grouping regression model is employed to test the above moderating effect. Firstly, according to the question "which organizations or institutions provide you with land transfer-related services in land transfer" in the CHFS questionnaire of 2017, the whole sample is divided into two subsamples, intermediary organization intervention, and spontaneous transfer. Secondly, the coefficient differences of the variable "transfer object" of different groups are compared after the grouping regression

test. If the difference is significant, the intervention of the intermediary organization exerts a significant moderating effect on the impact of transfer objects on the rent. Otherwise, the moderation role of the intermediary organization intervention does not exist.

According to data screening, 158 samples transferred farmland through intermediary organizations and 1960 samples transfer spontaneously by both parties. After grouping, this paper still uses the TEM for regression analysis. The results in columns 1 and 3 of Table 4 demonstrate that the transfer object significantly affects the transfer rent of farmland at the 10% and 1% levels, respectively. The rent of farmland leased to the local transferees is lower, and the influence of the transfer object in the group with intermediary organization intervention is significantly weaker than that of the spontaneously transferred group. That is to say, the intervention of intermediary organizations weakens the game between transferors and transferees on the FQSC in the rent decision. When the two parties trade through intermediary organizations, the difference in the rent of farmland leased to the local and out-of-village transferees decreases. Therefore, Hypothesis 2 is verified. Moreover, since Hypothesis 2 in this theoretical analysis is the logical continuation of Hypothesis 1, the verification of Hypothesis 2 further provides indirect evidence of Hypothesis 1.

Table 4. The moderating effect of intermediary organizations on transfer rent.

	(1)	(2)	(3)	(4)
	The Transfer Involved by Intermediary or Ganizations		Spontaneous Transfer by Both Parties	
	TEM	CMP	TEM	CMP
Circulation object	−2.280 * (1.280)	−1.862 *** (1.110)	−8.176 *** (0.080)	−8.194 *** (0.080)
Control variable	YES	YES	YES	YES
Village fixed effect	YES	YES	YES	YES
constant term	7.228 *** (2.309)	6.974 *** (2.320)	8.020 *** (1.245)	9.301 *** (0.476)
Residual covariance (σ)	0.312 (0.482)		2.694 *** (0.058)	
Residual correlation sysTEM (ρ)	0.738 *** (0.087)		1.299 *** (0.017)	
Wald test	19.75 **		10,508.55 ***	
atanhrho_12		0.085 (0.327)		2.714 *** (0.057)
N	158	158	1960	1960

Note: *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively; robust standard errors are shown in parentheses.

In order to verify the robustness of the moderating effect of the intervention of third-party organizations on the transfer rent, this paper uses CMP to make a further estimation, the grouping regression results of which are reported in columns 2 and 4 of Table 4. All of the results indicate that the transfer objects have a significant influence on the transfer rent at the level of 1%, and the intervention of third-party organizations has an obvious moderating effect on the rent decision, meaning that the moderating effect of intermediary organizations on the transfer rent is robust.

From the above discussion, it can be found that, first, our research has formed a consensus with the results of the existing literature in some aspects. For example, according to the division of transaction costs by Williamson (2000) [32], the transaction costs of farmland transferring include ex ante, in-process, and ex post costs [11], where ex post transaction costs are the costs of monitoring contract performance. Therefore, the FQSC is actually a typical ex post transaction cost. Moreover, both Choumert et al. (2017) and Gao et al. (2019) found that transaction costs exert an impact on farmland transfer rents [13,33]. It can be seen that our research provides some complement to the findings of the relevant literature.

Second, existing literature believes that trust is critical to price formation [4]. However, in the literature concerning land transfer, although Bryan et al. (2015) and Taylor et al. (2018) focus on the effect of trust on rent [15,20], they both regard trust as a tangible asset. In fact, trust is difficult to directly quantify. This paper combines trust with the FQSC,

providing a new perspective to explain the role of trust in the formation of farmland rent in an acquaintance society.

Third, few existing studies pay attention to the impact of a third-party intervention on rents. Although Bambio et al. (2018) and Tang et al. (2019) focus on this phenomenon [17,31], they both argue that government officials directly intervene in the pricing mechanism of rents and fail to open the black box of its internal mechanism. This paper answers the internal mechanism of public intervention affecting transfer rents in developing countries through theoretical deduction and empirical tests.

5. Conclusions

According to the data of 2118 farmland transferors in the CHFS of 2017, this paper analyzes the differences in transfer rent of farmland leased to different objects when the FQSC is considered, and the impact of the intervention of township governments, village committees, and other intermediary organizations on this rent difference, from both theoretical and empirical aspects. The results are as follows.

Firstly, considering the FQSC, there are significant differences in the rent transferred to the local and out-of-village transferees due to the different reputation mechanism constraints and search costs, and the rent level is lower when transferors deal with the local transferees.

Secondly, the intervention of intermediary organizations, such as township governments and village committees, can weaken the internal reputation mechanism constraints of an acquaintance society and reduce the costs of searching for external transferees, which is embodied in the narrowing of rent differences of transferring farmland to two types of transferees.

Based on the above research conclusions, the following policy recommendations are proposed. Considering that the existence of the FQSC has resulted in the inability of the transfer rent to act as a price signal transmission, there is an urgent need to establish a sound market for farmland transfer. In this process, especially in some developing countries including China, special attention should be paid to the role of appropriate public intervention which can form an effective supplement to the transfer market. It is necessary to give full play to the role and advantages of township governments and village committees in information acquisition and contract guarantee, particularly when the transfer market is not perfect, and especially for China at this stage. Hence, there is an urgent need for establishing and improving the low-cost intermediary organization of farmland transfer service with villages as network nodes, which can regularly release relevant information on land transfer, and supervise and guarantee all aspects of the transfer.

A possible shortcoming of this paper is that, in theory, we should find a price reference system for transfer rent to better reflect the difference in rent. However, the CHFS data cannot be used to obtain the supposed price of farmland through the shadow price measurement or cost-benefit reduction method. Therefore, in the follow-up study, further research is needed to reasonably assess the deviation of rent by combining the data obtained from field investigation with the suitable farmland price evaluation method.

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