

Article

Neighborhood Does Matter: Farmers' Local Social Interactions and Land Rental Behaviors in China

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Abstract: The transfer of farmland is an important area of rural development research; however, the impact of rural social networks has been neglected in studies. The aim of this study is to explore the effects, mechanisms, and heterogeneity of neighbors' behavior on the process of land renting by farmers. Based on the data of the China Family Panel Studies in 2018, this research empirically analyzes the impact of community-level, local social interactions on the land rental behavior of farmers and its mechanisms using a spatial probit model. The results of this study indicate that neighbors' land rental behavior positively and significantly affects that of other farmers in the same village. In addition, neighbors' land rental encourages other farmers in the same village to follow suit through an increase in the perceived importance of the Internet among the farmers. In addition, there is heterogeneity in neighborhood influence. Notably, the impact of social networks on the renting out of the land by farmers, as evidenced in this study, is a key factor in accelerating the circulation of rural land and promoting rural development, thus contributing to the process of rural revitalization and its recording in the literature.

Keywords: land transfer; peasant household; social embeddedness; neighbor behavior; spatial probit model



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1. Introduction

The issue of land ownership is the cornerstone of the stability and sustainability of development in rural areas. Activating rural land circulation is critical for optimizing agricultural land allocation, increasing agricultural performance, and promoting rural development. The transfer of rural land has always been one of the utmost priority issues for governments [1,2]. Indeed, the governments of several countries have introduced policies to encourage land transfers in rural areas [3,4]. Unfortunately, the problems and challenges associated with rural land transfers remain serious issues to be resolved [5]. For instance, despite the various methods employed by governments to facilitate rural land transfers, farmers are often reluctant to participate in these measures. Some farmers prefer to leave their land idle or even abandon it rather than transfer it [6]. The per capita land resources of peasant families are small and scattered, and the land circulation period is short [7]. Most farmers have only oral agreements when transferring land, and few peasant households actually sign contracts, which can easily lead to disputes [8]. Thus, improving the willingness of peasant families to participate in land transfer and farmland circulation is still an urgent problem in agricultural land management and rural development.

Since the reform and opening up of China, the reform of rural land transfer has been high on the agenda. In 1984, the government proposed “encouraging the gradual concentration of land to capable farmers”, marking the beginning of the reform of the transfer of rural land-use rights. In the late 1990s, the government encouraged the further development of the rural land transfer market in order to solve the problems of rural land abandonment and low productivity. In 2002, the Law of the People's Republic of China on Rural Land Contracting made specific provisions and enacted legislation on the subjects and forms of the transfer of rural land-use rights. This further accelerated the transfer

of rural land and expanded the degree of large-scale operations. After entering the 21st century, policies on non-agricultural market transactions of rural land have undergone a shift from the previous total ban to allowing conditional transfers. In short, the market for the transfer of rural land-use rights has been initially established; however, it still suffers from a lack of vitality and operates on only a small scale [9].

In 2014, China introduced a policy of the “separation of three rights”, whereby the ownership of rural land belongs to the collective, except for that which belongs to the state as stipulated by law, and the contractual and management rights of the land belong to farmers. The “separation of three rights” allows the right to operate the land to be used as an asset for collateralized loans, making land an even more valuable asset. In 2017, the government proposed a further rural revitalization strategy to deepen the reform of the rural land system, and in 2021, the government proposed a comprehensive promotion of rural revitalization with the goal of advancing the modernization of agriculture and rural areas. The reform of the land system is an important foundation for the realization of rural revitalization, and the agricultural land transfer policy is one of the important pivots for the implementation of this rural revitalization strategy [10].

Prior studies have explored factors influencing rural land transfer from different perspectives and levels, such as the family structure [11], asset level [12], financial literacy [8], social capital [13], personal attributes [14], and non-agricultural employment [15,16]. Existing studies have generally focused on the antecedents of rural land transfer, and this has been studied extensively. However, relevant studies have only been conducted based on the premise that farmers make their decisions on land transfer independently, without considering the mutual influence of farmers. That is to say, research on the connection between local social interaction and agricultural land transfer is sparse. The issue of agricultural land transfer is somewhat complex, as it does not only represent a market transaction of land but also involves interactions between geopolitics, kinship, neighborhoods, and human relations, and has its own logic. The concept of social embeddedness originated from the study of Polany [17] in 1944, which later led to an academic consensus that economic behavior is embedded in social structures [18,19]. Therefore, the core idea of social embeddedness is that the behavior of an economic agent is embedded in a social network, i.e., an individual’s economic actions are always unfolding in interaction with others, and his or her decisions are always made in connection with others [20,21]. According to this social embeddedness theory, farmers’ behavior is affected by both the “autonomy effect”, which is related to individuals and emphasizes the impact of individual-level factors [22], and the “embeddedness effect”, which is related to the farmers’ social environment [23,24]. As previously mentioned, most of the studies on land transfer and farmland circulation have mainly focused on the autonomy effect while the embeddedness effect has been generally ignored. In existing studies, farmers are often regarded as independent decision makers who make decisions to maximize their interests under certain conditions [8,25,26]. However, rural societies are typically understood to be “acquaintance societies”, meaning people are easily influenced by their neighbors in terms of their psychology and behavior [27,28]. Therefore, farmers’ land transfer behaviors cannot be fully explained if the factor of the mutual influence among neighboring farmers is ignored.

The aim of this study is to explore the impact of behavioral spillovers between neighbors on renting out rural land from the perspective of local social interactions rooted in the community. This study contributes effectively to the existing literature and theories in the following three ways: First, this study expands on the existing literature in relation to the impact of neighbors’ behavior on land transfers from the perspective of community-based social interactions. Second, it explores the path of neighbors’ behavioral spillovers on land rental, which complements the research related to rural land transfers. Third, it provides a new perspective on how governments in developing countries can stimulate the micro-driving force of land transfers by guiding community opinions and demonstrating the benefits of land transfers to the farmers.

2. Theoretical Analysis and Hypotheses Development

Studies on farmers' peer effects show that individual farmers are not independent when making decisions, and their embedded social networks profoundly impact their decision-making behaviors [29–31]. It is apparent that the social network between neighbors can promote the collective action of farmers' transfer of farmland. This collective action occurs through the convergence of farmers' land rental under the potential influence of the social network that is rooted in the local village. Its specific mechanism can be summarized in three aspects. The first is the information–transmission mechanism. Farmers have a strong demand for information about land transfer prices and the demands of land leaseholders. However, due to inadequate information on the value of their land, farmers must incur high costs to collect that information [32]. The social networks within local communities can effectively promote the dissemination and sharing of relevant information, reducing farmers' information collection costs [33,34]. When farmers obtain reliable information through observation and learning of the land rental activities of neighboring farmers, they imitate their neighboring farmers' behaviors and make the same decision, which is what Rassenti et al. [35] call “the convergence of behavior”. When farmers lack sufficient information, they are more inclined to use local social networks to collect information on land transfers, particularly on land rental, from their relatives, acquaintances, and other farmers, especially their neighbors, to make their own land transfer decisions [33].

The second mechanism is the social norm mechanism. Individual farmers dwelling in the same village share a common normative environment and know each other well [36]. In the process of land transfers among local farmers, a rental agreement is mostly an oral contract, and rent is often paid in favors; therefore, there is a potential credit risk [8]. However, once land rental becomes a common behavior among local villages, it will become a norm within the local social networks, which would help to reduce the opportunistic behavior of individual farmers and promote the convergence of farmers' behavior [36]. The final mechanism is the conformity mechanism. Since the classical experiments of Sherif [37] and Asch [38], many existing studies in this field of rural and agricultural development have documented the widespread presence of conformity in peasant families' decision making [39,40]. When renting out land in rural areas, farmers find it difficult to make accurate judgments because of their limited information. To avoid making mistakes when making decisions regarding land rental, farmers are likely to regard the information held by others (neighboring farmers) as their information sources and choose to be consistent with their behaviors (neighbor farmers), which is categorized as “farmers follow the herd” in the study conducted by Le Coent et al. [41].

In reality, information transmission, social norms, and conformity effects are often intertwined in the social networks of the local village, which together leads to the convergence behavior of farmers. Thus, when influenced by the local village's social network, farmers' land rental behavior converges, that is, “you rent out and I rent out”. This hypothesis is therefore proposed:

Hypothesis 1 (H1): Neighboring farmers renting out their land encourages individual farmers to do the same.

With the rapid development in information technology, farmers' use and understanding of the Internet is likely to affect rural development [42]. In rural areas, neighbors' behavior can also effectively influence farmers' use and perception of the Internet [27]. When more farmers in the neighborhood rent out land, the local Internet network displays increasingly relevant information and views, which further spread through the local social network, thus shaping the network's public opinion [43]. This process can enable farmers to improve their perceptions of the importance of the Internet. When a neighbor rents out land, it arouses the curiosity of other farmers in the same village [34], as captured by the expression, “neighbors look over hedge with curiosity” [44]. These farmers will be likely to search for information about land transfers through the Internet, which will increase their

perception of the importance and value of the Internet. Therefore, the following hypothesis is proposed:

Hypothesis 2 (H2): Neighbors' land rental behaviors have a positive effect on the farmers' perception of the importance of the Internet.

The use of the Internet can reduce the information asymmetry between those renting out and renting in farmland [45]. In the current situation, in which farmland transfer is not highly marketized, Internet use can significantly cut farmers' expenses and costs of looking for and transmitting information related to farmland transfers [46]. Farmers who have a clear and coherent realization of the importance of the Internet are more inclined to reduce information asymmetry in the local labor market through the use of the Internet. This, in turn, is conducive to timely access to more employment opportunities and increases the possibility of engaging in part-time production or migrant work [47,48]. Therefore, farmers with a higher perceived importance of the Internet are more inclined to lease agricultural land as it reduces farmers' dependence on land. Therefore, the following hypothesis is proposed:

Hypothesis 3 (H3): The perceived importance of the Internet positively affects individual farmers' land rental behavior.

According to the procedure of the mediating variable test [27,49], when Hypotheses 2 and 3 are both established, the perceived importance of the Internet mediates the relationship between neighbors' and individual farmers' land rental behaviors.

Referring to previous studies [50,51], the conceptual framework of this study is presented in Figure 1.

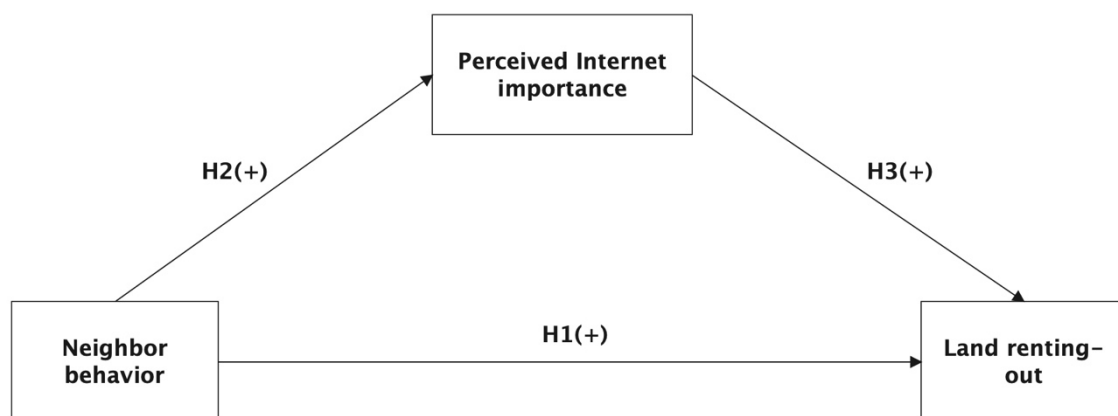


Figure 1. Conceptual framework.

3. Data, Variables, and Method

The microdata used in this study originated from the China Family Panel Studies (CFPS) in 2018, a nationwide panel survey that was organized and implemented by Peking University [52]. The survey covered 25 provincial administrations in China, including provinces, autonomous regions, and municipalities directly under the Central Government. All household members in each household were surveyed through four panels: adults, children, households, and communities. Therefore, these data points are both highly national and representative [53]. The CFPS uses a systematic probability sampling approach that is multistage, implicitly stratified, and proportional to population size [54]. Thus, the CFPS sample can be considered as a nationally representative sample [27]. In this study, the sample households are those peasant households engaged in any kind of agricultural work, such as farming, cultivating fruit trees, collecting produce, fishing, and raising fish/livestock, obtained from the CFPS household sample. These are traditionally

rural peasant households. This screening process yielded 5036 peasant households, of which 3556 households were selected. Their heads of household ranged in age from 20 to 60 years old. After removing the missing values, a final sample of 3286 peasant households was obtained.

3.1. Explained Variable

The willingness and demand of farmers to lease agricultural land is one of the critical antecedents affecting and regulating the agricultural land-rental market activity in rural society [11]. Therefore, land rental has always been an important topic in the study of rural land transfers [8,12]. Here, agricultural land rental is taken as the explained variable. The following item in the questionnaire was used to operationally construct this variable: “Have you rented out the land collectively owned by your family to others in the past year?” Irrespective of whether a rent was charged, if the farmer hands over the land to other people for use, it was defined as “renting-out” and was assigned the value 1; if not, it was assigned a value of 0. Therefore, it is a binary variable consisting of 1 s and 0 s.

3.2. Explanatory Variables

Neighbors’ behaviors can significantly impact individual decisions [55]. In the countryside, the influence of neighbors’ behaviors is almost omnipresent in peasant families’ decision making [34,56]. In accordance with the practices of Wang [56] and Skevas et al. [57], neighbors’ behaviors can be construed as the spatial lag term of the explained variable, which is the result of multiplication of the constructed spatial weight matrix and land rental. A common method is to construct a spatial continuity weight matrix composed of 0 and 1 [58]. Therefore, this study also constructed a similar spatial continuity weight matrix: when two farmers were in the same village, the spatial weight between the farmers was 1; otherwise, it was 0. Following Gu [27], the spatial weight matrix was also spectrally normalized. In this study, neighbors’ behavior specifically refers to the agricultural land rental behavior of neighboring peasant households in the same village.

3.3. Covariates

Rural labor mobility affects agricultural land-leasing behavior, and rural outmigration for work causes higher levels of farmland rental [59,60]. The rural outmigration variable was defined as whether any member of the family had migrated out for work: if at least one member of the family had migrated out for work, the variable value was 1; otherwise, it was 0. Rural families participating in non-agricultural entrepreneurial activities, including the operation of rural e-commerce and homestay, are more likely to rent out farmland, which has been confirmed in previous studies [16,61]. Therefore, it was necessary to consider farmer entrepreneurship as a covariable. The entrepreneurship variable is defined operationally by the number of farmers who are self-employed or private enterprises. Household-owned farm machinery negatively impacts farmers’ land rental behaviors [12]. The machinery variable was defined operationally via the logarithmic value after adding 1 to the whole value of agricultural machinery and equipment that was owned by the farmer. Household size, household income, and farmers’ land transfers are closely related [8,12,15]. Therefore, these two variables were also included in the empirical models.

Consistent with the previous literature on agricultural land transfer and rental [8,11,14], it is important to control factors at the level of household heads, including personal biological attribute variables such as gender and age, as well as individual social attribute variables such as years of education and marital status.

3.4. Mediator

Mediation is an important concept in the social sciences [62]. In this study, the study of the mediation effect helps in gaining a better understanding of the relationship and mechanism between social networks and land transfer in order to better manage the process of rural land transfer. By studying the mediation effect, the government and other relevant

decision makers can better understand the behavior and motivation of farmers in renting out land so that they can formulate more effective management strategies to improve the overall efficiency of rural land transfer. In 2020, the Internet penetration rate in China's rural areas had skyrocketed to 55.9% [63]. The average global Internet penetration rate in both urban and rural areas was now 62% [64]. In the information age, the perceived value of the Internet widely affects people's decisions and behaviors [65,66] and also directly or indirectly affects farmers' decision making [27]. Based on previous studies [46,47], it is important to empirically test the perceived importance of the Internet as mediator by operationally defining it in terms of respondents' ratings of the importance of the Internet (1 = very unimportant to 5 = very important).

The descriptive information of the above variables is reported in Table 1.

Table 1. Descriptive information of variables.

Variable	Definition	Mean	Std. Dev.	Min.	Max.
Land rental	1 means the land is rented-out and 0 implies that the land is not rented-out	0.105	0.307	0	1
Neighbors' behavior	Spatial lag term of land rental	0.105	0.16	0	1
Labor outmigration	1 means that someone is migrating-out for work, 0 represents no outmigration	0.586	0.493	0	1
Entrepreneurship	Number of self-employed or private enterprises	0.1	0.328	0	3
Machinery	Logarithmic value after adding 1 to the whole value of agricultural machinery which is owned by the farmer (CNY)	4.061	4.188	0	13.459
Household size	Population size of the peasant households	4.365	1.867	1	16
Household income	Logarithmic value after adding 1 to the annual whole household income	10.729	0.898	0	14.146
Gender	Gender indicator with 1 for males and 0 for females	0.535	0.499	0	1
Age	Age	47.201	8.592	20	60
Education	Years of education (Year)	6.803	3.961	0	19
Marriage	Marital status with 1 for married and 0 for others	0.916	0.277	0	1
Perceived importance of the Internet	5-point scale with 1 for very unimportant and 5 for very important	2.608	1.569	1	5

3.5. Methods

According to Amaral et al. [67], the so-called spatial probit model (the spatial autoregressive probit model) can be modeled as follows:

$$Y^* = \rho WY^* + X\beta + \epsilon \quad (1)$$

where $Y^* = (Y_1^*, \dots, Y_N^*)'$; and Y_i^* is a latent variable. $W(N \times N)$ is a spatial continuity weight matrix composed of 1 and 0, which captures the structure of the social interactions between neighboring peasant households in the same village. X is the matrix of vectors of covariates. β is a parameter vector, and ρ is the key parameter on which this study focuses. $\epsilon \sim N(0, \sigma^2 I_N)$. Here, $N = 3286$. Given that Y_i^* is not observable, the observed equation of the binary variable Y_i is as follows:

$$Y_i = \begin{cases} 1, & \text{if } Y_i^* > 0 \\ 0, & \text{if } Y_i^* < 0 \end{cases} \quad (2)$$

If $\rho = 0$, this spatial probit model thus reduces to the standard probit model because there is no neighborhood interaction [53]. If $\rho \neq 0$, it means that there is a neighborhood interaction. Under these circumstances, the traditional estimators that are used in the standard probit model are biased because neighborhood interactions are systematically ignored [67,68]. Thus, the spatial probit model is preferred [69].

In general, the mediating variable test is conducted using a stepwise regression method consisting of three formulas [49]. When there is neighborhood interaction, referring to the practice set out in [27], the following two formulas can be added on the basis of Formula (1):

$$M^* = \rho WM^* + \gamma WY^* + X\beta + \epsilon \quad (3)$$

$$Y^* = \rho WY^* + \delta M^* + X\beta + \epsilon \quad (4)$$

where M^* denotes the vector of the mediating variable. If ρ in Formula (1), γ in Formula (3), and ρ and δ in Formula (4) are all significant, it indicates that M^* is a mediator.

Stata software (version 17.0, Stata Corp., College Station, TX, USA) was used to conduct the spatial probit analysis, and each hypothesis in the theoretical model was tested.

4. Results

Before conducting the spatial probit model regression, conducting a spatial autocorrelation test is necessary. Both Moran's I index (Moran) and Geary's C index (Geary) are commonly used methods to perform the spatial autocorrelation test [70]. Moran's I index of land rent-out is 0.126, and it is significant (p -value is 0.000). Geary's C index of land rent-out is 0.874, and it is significant (p -value is 0.000). Thus, in this study, the spatial probit model here is significantly better than the standard probit model.

4.1. Baseline Results

The empirical results of the spatial probit models and their related parameters are reported in Table 2. Specifically, columns (1) and (2) in Table 2 present the empirical results of the models that control for covariates at the household level. The latter results are controlled for provincial effects, whereas the former are not. On this basis, columns (3) and (4) add covariates at the household-head level. Column (4) controls for the provincial effects, while column (3) does not. All of the Hansen's J statistics in these models are not significant, indicating that these models are effective [69]. As reported in Table 2, the coefficients of neighbors' behavior in all the columns are both significant and positive. Thus, Hypothesis 1 is supported. Therefore, when neighboring farmers rent out land, this behavior spreads to other farmers in the same village through the neighbor-to-neighbor spillover. This spillover effect can effectively encourage and mobilize farmers to rent out agricultural land. The influence of this type of neighborhood spillover has been proven in many fields, such as the environment [71], urban development [72], real estate [56], and public health [73]. This is the first time that a neighborhood spillover effect has been confirmed in the field of agricultural land transfer.

In addition, the estimated coefficients of labor outmigration in all columns of the preceding Table 2 are significant and positive. Thus, labor outmigration in peasant households increases the probability and possibilities of agricultural land rental in rural areas. These empirical findings are clearly in line with the conclusions of previous research [59,60]. After controlling provincial effects, the coefficients of entrepreneurship are significantly positive. One potential reason for this is that farmers participating in non-agricultural activities are less dependent on the land [16,61]. Moreover, the negative impact of agricultural machinery owned by peasant families on the agricultural land rental behavior of farmers has also been confirmed [12]. The negative relationship between household size and farmers' land rental behavior has been confirmed, while the effect of household income is positive. The results in this study are roughly similar to some of the empirical results in previous research [8,12,15].

Table 2. Empirical results of baseline models.

	Explained Variable: Land Rental			
	(1)	(2)	(3)	(4)
Neighbors' behavior	0.684 *** (3.49)	0.897 *** (3.94)	0.734 *** (3.9)	0.904 *** (4.32)
Labor outmigration	0.078 * (1.85)	0.103 ** (2.28)	0.078 * (1.83)	0.103 ** (2.26)
Entrepreneurship	0.103 (1.64)	0.137 ** (2.13)	0.098 (1.57)	0.131 ** (2.03)
Machinery	−0.024 *** (−4.87)	−0.024 *** (−4.74)	−0.022 *** (−4.59)	−0.023 *** (−4.47)
Household size	−0.024 ** (−2.18)	−0.038 *** (−3.18)	−0.016 (−1.45)	−0.029 ** (−2.35)
Household income	0.122 *** (4.62)	0.108 *** (3.88)	0.123 *** (4.56)	0.104 *** (3.70)
Gender			−0.025 (−0.61)	−0.047 (−1.09)
Age			0.001 (0.33)	0.001 (0.51)
Education			0.005 (0.94)	0.010 * (1.66)
Marriage			−0.261 *** (−3.40)	−0.269 *** (−3.42)
_cons	−1.568 *** (−3.84)	−1.101 (−1.59)	−1.370 *** (−3.21)	−0.93 (−1.29)
Provincial fixed effects	No	Yes	No	Yes
N	3286	3286	3286	3286
Hansen's J statistic	3.098	5.858	4.72	6.308
Hansen's J statistic (p-value)	0.542	0.21	0.787	0.613

z-statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

As for the factors of the household head, the influence of age and gender is not significant, and the number of years when the household head received education can improve the probability and possibilities of agricultural land rental from peasant households only when the provincial effects are controlled for. The empirical findings here roughly echo the empirical results of previous research [6,15]; however, they also differ in some aspects from the results of similar research [6,8], as they show that the household head's age has a significantly negative effect on agricultural land rental from peasant households, whereas the educational level of the household head has no significant impact. This indicates introducing neighbors' influence as a factor may change the influence of relevant factors on agricultural land rental from peasant households. Moreover, the household head's marital status inhibits farmers from renting out land, which was previously generally ignored.

4.2. Robustness Check

The CFPS has long used computer-assisted personal interviewing (CAPI) to conduct surveys. However, in 2020, due to the COVID-19 pandemic, CFPS switched to computer-assisted telephone interviewing (CATI) to conduct surveys. Changes in the way the surveys were conducted were likely to have an impact on the results. Therefore, it is necessary to carry out robustness tests here. Data from the CFPS in 2016 were used for the test, and the results are summarized in column (1) of Table 3. Then, data from CFPS in 2020 were used, and the results are summarized in column (2) of Table 3. Comparing the regression coefficients of neighbors' behavior in Table 3 with the regression coefficient of neighbors' behavior in column (4) of Table 2 shows that these coefficients are significantly positive. This suggests that the change in the survey method did not affect the findings of this study, i.e., the results of this study are robust.

Table 3. Robustness test.

	Explained Variable: Land Rental	
	(1)	(2)
Neighbors' behavior	1.136 *** (6.18)	1.496 *** (5.74)
Labor outmigration	0.152 *** (3.58)	0.078 (1.54)
Entrepreneurship	0.209 *** (3.54)	0.183 ** (2.12)
Machinery	−0.016 *** (−3.26)	−0.012 ** (−2.03)
Household size	−0.008 (−0.66)	−0.053 *** (−3.36)
Household income	0.073 *** (2.97)	0.151 *** (4.4)
Gender	−0.091 ** (−2.14)	−0.04 (−0.75)
Age	0.002 (0.85)	0.003 (1.06)
Education	0.015 *** (2.67)	0.001 (0.15)
Marriage	−0.173 ** (−2.32)	0.08 (0.87)
_cons	−0.734 (−1.45)	−1.666 * (−1.7)
Provincial fixed effects	Yes	Yes
N	3692	2250
Hansen's J statistic	5.15	4.735
Hansen's J statistic (<i>p</i> -value)	0.881	0.786

z-statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4.3. Path Analysis

How does neighbors' behavior affect the farmland rental behavior of other neighboring peasant families in the same community or village? To answer this question, the specific influence paths in this relationship must be examined. In the information age, the perceived value of the Internet influences individual decision making and behavior and often plays an important role in local social networks [42,45]. Therefore, the perceived importance of the Internet for farmers and peasant families in this study is used as the operationally mediating variable. Relevant results were obtained using the stepwise test method [27,49] and are summarized in Table 4. Columns (1), (2), and (3) correspond to Formulas (1), (3), and (4), respectively.

According to the results of column (2) in Table 4, the coefficient of neighbors' behavior (γ) is positive and significant. Thus, Hypothesis 2 is supported. When neighboring farmers rent out their land, this behavior attracts the attention of other farmers in the same village and encourages them to hunt for relevant information concerning land by surfing the almost ubiquitous Internet to facilitate their understanding of the situation [44]. Consequently, farmers' perception of the importance of the Internet increases. According to column (3), the regression coefficient of the perceived importance of the Internet (δ) is significantly positive. Thus, Hypothesis 3 is supported. The farmers' increased perceived importance of the Internet helps them find alternative employment opportunities, such as part-time jobs [47,48], thus reducing their dependence on the land and increasing the probability of land rental. In addition, the regression coefficients of neighbors' behavior (ρ) in columns (1) and (3) are significantly positive. Therefore, the Internet's perceived importance mediates the relationship between neighbors' and other farmers' behavior in the same village regarding land rental. Moreover, neighbors' behavior not only directly affects the land rental behaviors of other peasant families in the same community but also indirectly

affects the farmers' behavior by influencing the Internet's perceived importance for other peasant families. The empirical results show clearly here that the direct and mediating effects have the same direction; therefore, the mediating effects here are complementary rather than competitive [74].

Table 4. Test of the mediating mechanism.

	Explained Variable		
	Land Rental	Perceived Internet Importance	Land Rental
	(1)	(2)	(3)
Neighbors' behavior (ρ)	0.904 *** (4.32)		0.935 *** (4.7)
Neighbors' behavior (γ)		0.307 ** (2.02)	
Perceived importance of the Internet (δ)			0.126 *** (2.75)
Variables controlled	Yes	Yes	Yes
Provincial fixed effects	Yes	Yes	Yes
N	3286	3286	3286
Hansen's J statistic	6.308	6.945	6.241
Hansen's J statistic (p -value)	0.613	0.643	0.716

z-statistics are in parentheses; ** $p < 0.05$, *** $p < 0.01$.

4.4. Heterogeneity Analysis

The influence of neighbors is often different in different situations. In accordance with the division practice of the Chinese Bureau of Statistics, the samples are partitioned into the two regional groups in China: the eastern and northern region, and the central and western region. Therefore, the results are correspondingly presented in Table 5. Please see Appendix A for information on the regions to which specific provincial administrative units belong. As shown in Table 5, the neighbors' impact on the agricultural land rental behavior of peasant households in two different areas is significant, but the impact in the eastern and northern region is clearly stronger than that in the central and western region. One reason for this phenomenon is that the interaction between neighbors and the social network in local communities in different regions is different [75]. In the rural areas of eastern and northern China, neighborhoods will be more closely knit and, as a result, the influence of neighbors will be greater.

Table 5. Empirical results of regional heterogeneity.

	Explained Variable: Land Rental	
	Region	
	(1)	(2)
	Eastern and Northern Region	Central and Western Region
Neighbors' behavior	0.896 ** (2.41)	0.829 *** (3.31)
Variables controlled	Yes	Yes
Provincial fixed effects	Yes	Yes
N	1052	2234
Hansen's J statistic	4.39	7.439
Hansen's J statistic (p -value)	0.82	0.49

z-statistics are in parentheses; ** $p < 0.05$, *** $p < 0.01$.

Government subsidies and agricultural machinery leasing can have an effect on land transfers in rural areas [12,26]. Therefore, the neighbors' impact on land rental may also differ depending on whether farmers receive subsidies or rent machinery. After grouping the samples, regression analysis was performed, and the empirical results of those tests are summarized in Table 6. As shown in column (1) and column (2) of Table 6, both effects of neighbors' behavior on land rental are significant, but the intensity of the effect is greater on farmers with subsidies than on those without subsidies. Government subsidies to encourage land transfers will create strong incentives for farmers to rent out their land and will encourage more neighboring farmers to rent out their land. As shown in columns (3) and (4), the effect of neighbors' behavior on land rental is only significant for farmers who have not leased agricultural machinery. Without sufficient agricultural machinery, farmers are more likely to follow their neighbors' practices and rent out the land.

Table 6. Results of subsidies and agricultural machinery leasing.

	Explained Variable: Land Rental			
	Subsidies		Agricultural Machinery Leasing	
	(1)	(2)	(3)	(4)
	Yes	No	Yes	No
Neighbors' behavior	0.449 *** (2.68)	0.347 *** (2.62)	−0.001 (−0.01)	0.017 *** (2.9)
Variables controlled	Yes	Yes	Yes	Yes
Provincial fixed effects	Yes	Yes	Yes	Yes
N	1010	2276	1498	1788
Hansen's J statistic	10.869	11.469	16.63	17.717
Hansen's J statistic (<i>p</i> -value)	0.998	0.998	0.968	0.973

z-statistics are in parentheses; *** *p* < 0.01.

Networks (Internet and social networks) are widespread factors that affect farmers' land transfer in rural areas [13,46]. In this study, the sample is divided into farmers with and without access to the Internet. As shown in column (1) and column (2) of Table 7, the effect of neighbors' behavior on land rental is only significant for farmers without access to the Internet. Without Internet access, such farmers rely more extensively on information from their neighbors and are, therefore, more likely to emulate their neighbors' behavior.

Referring to previous practices [76], households are classified into two groups based on their total annual expenditure on social activities and social interaction. If the total annual expenditure on social activities and social interaction is zero, such families are labeled as having no social networks. Other families are labeled as having social networks. The empirical results of those tests are summarized in column (3) and column (4) of Table 7. The empirical results here show that the neighbors' influence on farmland rental in rural areas is only significant for peasant families with solid social networks in the same community or village. Farmers with no social networks are essentially outside or on the fringes of the local social network. Consequently, their behaviors are less influenced by those of their neighbors.

Table 7. Empirical results of Internet-related heterogeneity among household heads.

	Explained Variable: Land Rental			
	Access to the Internet		Social Network	
	(1)	(2)	(3)	(4)
	Yes	No	Yes	No
Neighbors' behavior	0.014 (1.43)	0.032 *** (4.59)	0.014 *** (3.36)	−0.007 (−0.14)
Variables controlled	Yes	Yes	Yes	Yes
Provincial fixed effects	Yes	Yes	Yes	Yes
N	1491	1795	3124	162
Hansen's J statistic	25.806	15.096	22.673	3.204
Hansen's J statistic (<i>p</i> -value)	0.731	0.993	0.861	0.999

z-statistics are in parentheses; *** $p < 0.01$.

5. Discussion

5.1. Theoretical Implications

Ethnomethodology holds that social interactions among group members are governed by some folk rules [77]. However, in research on farmers' land transfer behaviors, those folk rules hidden in the social interactions between neighbors are generally ignored. Folk rules permeate rural daily life and carry a high degree of acceptance in village social life. Folk rules possess a catalytic mechanism that helps land transfer to be fully integrated into the daily life of the village, which will increase the motivation of farmers to transfer land. To fill in this obvious knowledge gap, the current research attempted to find the micro-driving force of land transfers generated through social interaction at the community or rural village level from a novel and insightful perspective of neighbor interactions. In this regard, the current research makes important theoretical contributions.

First, the current research enriches the literature on agricultural land transfers from the perspective of local social interactions in rural villages. As for the factors affecting the transfer of rural land, the existing literature mainly analyzes factors such as non-agricultural employment and relevant characteristics at the family and village levels [11,25,60]. In contrast to the previous research, this study deliberately focused on the effect and impact of village-based local social interaction on farmland rental. The results and empirical evidence of the current research indicate that the interaction between neighboring peasant families in the same village and the resulting demonstrative effect can promote farmland rental. Hence, this study shed light on the importance of local social interactions in promoting farmers' land transfer behaviors, providing a deeper understanding of the rapidly emerging research area of rural land transfers, which has, thus far, been widely ignored by scholars [8,78].

Second, this research contributes effectively to the agricultural land literature on neighborhood spillovers by exploring the mechanisms through which neighboring farmers and peasant families rent out agricultural land [56,73]. To this end, this study examined the perceived importance of the Internet as a mediator. Specifically, when neighboring farmers' land is rented out, it not only directly increases other farmers' probability and possibilities of renting out land in the same village but also indirectly increases the probability of farmland rental by improving the perceived value and importance of the Internet among other farmers and peasant families in the same village. As far as the existing land transfer situation is concerned, information asymmetry is the main influencing factor leading to the inefficiency of land transfer in rural China. In the past, farmers mainly obtained land information through face-to-face communication with relatives and friends in the village; however, this method is defective in terms of the timeliness of information exchange and

the potential range of dissemination. Through the Internet, farmers can not only break through the information asymmetry barrier inherent in neighborhood communication [79] or enhance the information exchange efficiency of both sides of the transfer to reduce transaction costs [80] but also broaden the spatial and temporal scope of farmers within the market so as to further deepen the depth and breadth of the transactions within the land transfer market. Moreover, the direct and mediating effects show the same direction; therefore, the mediating effect is complementary rather than competitive [74]. Thus, the development of the Internet not only helps promote land transfers [46] but can also produce a social multiplier effect to accelerate the transfer of rural land [27,58]. This finding provides a new perspective for comprehensively and accurately assessing the impact of the social interaction and spatiotemporal integration of physical space–time and Internet-based virtual space–time on rural land transfer.

Finally, by analyzing heterogeneity, this study more comprehensively examined how local social interactions influence land rental in rural areas. This study showed that the neighborhood effect on land transfers is not significant for rural households with leased agricultural machinery and households that are dissociated from the local social network (farmers with access to the Internet but no social network). Indeed, this finding deepens the research on land transfers in rural areas [25,26,61]. It provides empirical evidence and theoretical guidance for stimulating the micro-driving force of land transfers in rural areas.

5.2. Practical Implications

Combining the findings and empirical evidence of this current research, this study proposes some targeted policies and practical recommendations based on three aspects. First, concerning rural governance, the government should provide farmers with opportunities to participate in any local social network and promote positive interactions between the village committee and the farmers' social network to achieve a consensus on land transfer through consultation. Second, the formation and operation of the farmers' local social network in the context of land transfers depend on the role played by rural elites and agricultural leaders. Therefore, the government should vigorously publicize land transfer policies, guide farmers to learn from rural elites and agricultural leaders, improve their willingness to transfer land and ensure an effective land supply in rural areas. Finally, the government should actively cultivate stable farmers' cooperative organizations to facilitate the growth of social networks. As long as they are well-designed and thoroughly implemented, these policies can achieve good results. There will always be resistance and challenges to the implementation of any policy, and the key is to ensure that the policy is popular and its implementation is well-planned. While these policy recommendations are designed for the Chinese context, they can also serve as a reference for facilitating agricultural land transfers in most developing countries. Of course, when applying China's experience in other countries, the cultural and institutional differences need to be fully taken into account.

5.3. Limitations and Future Research

Owing to features of the data and other constraints, the current research inevitably has some deficiencies. This study only utilized data from China, which prevents international comparative research. In the future, relevant data from other regions and developing countries should be collected systematically and analyzed by comparing different countries. In addition, to construct a spatial weight, this study adopted the method of attributing an equal weight in the same village. However, even if farmers live in the same area of the countryside, the influence of different neighbors is different; that is, the weight is different. Therefore, in the future, scholars should aim to construct spatial weight matrices with different weights to describe neighborhood relations. Fourth, because the data for this study came from the CFPS, there is limited information on rural land transfers. In the future, a more in-depth and complementary study should be conducted in conjunction

with other data. Finally, the directionality of the neighbor spillover effect in the process of land transfer is worth further investigation.

6. Conclusions

During the transformation and upgrade of the mode of agricultural production for agricultural modernization, stimulating farmers' participation in land transfers and guiding large-scale production operations are crucial steps. Accordingly, based on the 2018 CFPS micro database, this study examined the farmers' neighbor effect in the process of land rental. The empirical evidence of this current study shows that the land-leasing behavior of neighboring peasant families has a significantly positive impact on the agricultural land rental behavior of other peasant families in the same village. This, in turn, indicates that neighborhood interaction based on the local social network of the village influences farmers' willingness to rent out agricultural land. In terms of the mechanism of the local social network, this study found that the Internet's perceived importance is an important mediating variable for neighbors' mutual influence on land rental behavior. Moreover, farmers show a heterogeneous neighborhood effect while renting out land. Overall, the neighborhood effect is significant; however, for rural households that lease agricultural machinery and farmers who have access to the Internet but lack a social network, the neighborhood effect is not significant. Undoubtedly, these results provide important empirical evidence and theoretical guidance for stimulating the micro-driving force of land transfers in rural areas through local social networks.

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Appendix A

Table A1. Regional division of provinces.

The Eastern Region (10 Provincial Administrative Units)	The Central Region (6 Provincial Administrative Units)	The Western Region (12 Provincial Administrative Units)	The Northeast Region (3 Provincial Administrative Units)
Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan.	Shanxi, Anhui, Jiangxi, Henan, Hubei and Hunan.	Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang;	Liaoning, Jilin and Heilongjiang.

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