The Impact of Family Capital on Farmers’ Participation in Farmland Transfer: Evidence from Rural China

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Abstract: Family capital provides diverse and effective resources for production and livelihood of farmers, and thus profoundly determines farmers’ behavior in the decision-making process, yet the specific impact of family capital on farmers’ participation in farmland transfer has not been adequately examined. Based on a theoretical analysis, this paper divides family capital into four dimensions: human capital, economic capital, social capital, and cultural capital, and empirically analyzes the impact of different types of family capital on farmers’ participation in farmland transfer by using data on farmers in the 2018 China Family Panel Studies (CFPS) database. The results show that human capital, economic capital, and cultural capital all have significant impacts on both farmland transfer-out and transfer-in behavior, while social capital only plays a significant role in farmland transfer in. In order to accelerate the development process of farmland transfer in China, it is necessary to actively guide surplus rural labor towards non-agricultural employment, improve the farmland system and build a land transfer trading platform to promote the transfer of farmland to households with a good agricultural base, and strengthen social security construction to reinforce the enthusiasm of farmers engaging in land transfer.

Keywords: family capital; farmland transfer; farmer behavior; rural China

1. Introduction

Eradicating hunger, achieving food security, and promoting the development of sustainable agriculture are important goals of current global sustainable development [1]. In the context of the implementation of China’s Rural Revitalization Strategy, land as the basis and carrier of agricultural production and rural development is of great significance for popularizing new agriculture, invigorating the rural economy, and coordinating urban and rural development [2,3]. With the rapid development of the social economy and the continuous acceleration of the global urbanization process, the situation of rural land use in many developing countries has changed significantly in recent years [4–6]. A large proportion of the rural labor force is transferring to non-agricultural employment, the phenomenon of ‘hollow villages’ is becoming increasingly intense [7], and there are practical problems such as the loss and abandonment of farmland in rural areas [8–10]. The massive decline in rural labor has seriously affected the efficiency of rural land use.

In order to effectively protect and utilize farmland resources, the Chinese government has actively explored and promoted the development of farmland transfer. Farmland transfer mainly refers to the resource allocation mode in which farmers trade farmland management rights in the land rental market on the basis that the household contract responsibility system (HCRS) remains unchanged. At present, as an important method of optimizing the allocation of land resources in China, farmland transfer has further improved the labor productivity of farmers [11–13] and the land output rate [14–16] by promoting the development of moderate-scale management of farmland [17], which is
conducive to improving the living standards of farmers [18,19], and further optimizing the employment structure of the rural labor force [20,21]. It is also recognized as a positive measure for such areas to reduce poverty, eliminate hunger, and maintain food security. In recent years, China’s farmland transfer rate has continued to increase year by year with the support of government policies, but it is still at a relatively low level, and farmers’ overall management patterns have not changed substantially [22]. In terms of China’s policy goal of promoting moderate-scale agricultural operations, there is still room for improvement.

For the majority of Chinese farmers, the most effective way to optimize the allocation of land resources is to participate in farmland transfer. However, since ancient times, Chinese rural society has been marked by the character meaning ‘soil’. “Country people cannot do without the soil because their very livelihood is based upon it” [23]. The significance of land to farmers is not only as a ‘scarce resource’ in the traditional sense of economics, but also as an important guarantee for the basic livelihoods of farmers’ families [24]. Therefore, when farmers are faced with land issues, their behavior decisions will be based more on the family’s overall situation. As the most basic organizational structure in Chinese rural social life, the family is an important decision-making unit for farmers participating in farmland transfer. Among many factors affecting the family, resource endowment has a great influence on the process and result of individual decision-making behavior, which is mainly reflected in the rational choice of individuals based on their own resources in the face of external uncertainty [25]. Family capital profoundly affects farmers’ behavioral decisions, process, and results, by providing a diverse range of resources for farmers’ production and livelihoods. Therefore, an analysis of the impact of family capital on farmers’ participation in farmland transfer would be of great theoretical and practical significance in supplementing the relevant theoretical analysis of the factors affecting farmland transfer, and in promoting the development process of farmland transfer.

As farmers are the main participants in farmland transfer, their willingness and participation directly determine the development process. This has resulted in intense academic research into and discussion of the factors influencing farmers’ behavior in this process. The research perspective can be summarized on two levels: macro socioeconomic conditions and micro individual characteristics of farmers. At the macro level, the identification of the land transfer system in legal documents marked the beginning of land transfer, while the subsequent liberalization of the household registration system and urbanization promoted the transfer of rural labor, and the reduction of agricultural taxes, the issuance of agricultural subsidies, and the penalty for abandoning land promoted land transfer [26–28]. The two aspects of the policy complement each other and together promote the efficient allocation of labor and land resources. With the large-scale promotion of registration and certification, farmers’ land property rights are becoming clear and stable, and the institutional barriers to land transfer are progressively becoming smaller. Land transfer is not only constrained at the institutional level, but also influenced by regional factors. Local pilots and exploration of new patterns have played a considerable role in promoting land transfer [29], while the level of income from non-agricultural employment and wages in cities can also contribute to the land transfer decisions of households [28]. At the village level, the economic and geographical conditions of the village and the supporting agricultural production service system are also crucial criteria for farmers to consider when making decisions related to land transfer, considering the requirements of agricultural products for transportation and storage [30,31].

In terms of the household level, the higher the quality of the land, the smaller the scale of land management, and the lower the value of the land, the lower the probability of households participating in land transfer [30,31]. The transaction cost of land transfer with a land contract certificate, notarized by a notary or signed transfer contract is normally lower, thus making it prone to land transfer [32]. From the perspective of household capital, human capital conditions such as age, education, and political status are all essential determinants of land transfer [33,34], and social capital such as social network and family status also facilitate the transfer of land [35]. In the case of agricultural business
conditions, there is a higher likelihood of land transfer in for farmers with higher agricultural productivity and the value of agricultural machinery and equipment [36], while higher levels of household part-time employment, good off-farm livelihoods, and fixed assets have a positive impact on land transfer out [37]. From the cognitive perspective, the perception of land security function reduces the willingness to transfer land [26,38], and the presence of a strong endowment effect of farmers on land also inhibits land transfer [39]. Furthermore, there may be a deviation between willingness to transfer and actual transfer behavior [26]. Zhang et al. showed that factors such as farmers’ production motivation, access to information on land transfer, and property rights intervention may cause farmers with willingness to transfer farmland to eventually not transfer their farmland [40].

Based on the above analysis, this paper constructs a systematic theoretical analysis framework on a theoretical basis from the research perspective of family capital, and uses nationally representative data to explore in depth the impact of family capital on farmers’ participation in farmland transfer.

The remainder of the paper is organized as follows: Section 2 combs through and analyzes the development process of China’s rural land transfer policy; Section 3 builds a theoretical analysis framework; Section 4 introduces the data, selection of variables, and research methods used in the empirical analysis; and Section 5 analyzes the results of both the descriptive statistics and regression. A discussion follows in Section 6, and Section 7 contains conclusions and policy implications.

2. The Background of Farmland Transfer in Rural China

China’s household contract responsibility system (HCRS) is a typical bottom-up system of reform, which originated from the spontaneous practices of rural areas such as Anhui and Sichuan in the late 1970s. After the reform and opening up in 1978, the Chinese government implemented this system in the countryside in the 1980s [41]. The HCRS separated ownership and contractual management rights, the former belonging to village collectives and the latter to farmers [42]. The farmers can cultivate the contracted land according to their own wishes. As land fragmentation and frequent adjustments have affected farmers’ enthusiasm for production input [43], the Chinese government has extended the land contract period many times in order to further stabilize and improve the contract responsibility system [44].

Although the agricultural management system characterized by the contract responsibility system promoted the rapid growth of agriculture [45,46], the implementation of the HCRS also led to the fragmentation of cultivated land [47]. The small-scale farmland management mode restricted agricultural mechanization and the innovation of production technology, which further restricted the development of modern agriculture. In addition, with the rapid development of China’s industrialization and urbanization, a large proportion of the rural labor force has transferred to the cities, and the number engaged in agricultural labor has gradually decreased [48]. As a result, the original production mode is no longer fully adapted to the new development requirements. In order to change this mode and further improve its efficiency, the policy to reform farmland transfer came into being.

Early exploration of this policy reform mainly began with the Central Document No. 1 (zhongyang yihao wenjian) in 1984. The document stipulated that members of village collectives could set their own targets for negotiation and subcontracting under the premise of collective consent during the contract period, but it also explicitly prohibited other methods of farmland transfer such as sales and leases. With the improvement of the HCRS and the further development of farmland transfer, the restrictions have been gradually relaxed, and farmland transfer behavior has been continuously regulated. In 2003, the Rural Land Contract Law was formally implemented, which more clearly allowed contractual management rights to be transferred to units or individuals outside the rural collective economic organization, and emphasized the principles of voluntary participation and compensation, each in accordance with the law [43]. Furthermore, the government
made it clear that the registration and certification of rural land rights should be fully carried out from 2013 onwards, and formally proposed the institutional innovation of the ‘separation of three rights’ (sanquan fenzhi) of rural land in 2014. Since then, the land contractual management right has been further divided into a land contract right and a land management right, and the reform of farmland transfer policy has been mainly based on the continuous exploration and enrichment of the ‘separation of three rights’ approach [49].

Reform of the rural land system in China has been constantly changing and innovating with the development of agriculture and actual productivity in rural areas. The idea of farmland transfer has gone through different development stages involving prohibition, permission, encouragement, and innovation. During the reform process, the scope of land rights enjoyed by farmers has gradually expanded, and their legitimate rights and interests have been valued and protected; the forms and participants of land transfer have become increasingly diverse, and the agricultural management mode has been constantly innovated. Practice has proved that the farmland transfer reform improved farmers’ autonomy in land management and greatly liberated and developed rural productivity. It is also conducive to promoting the development of modern agriculture and the implementation of the Rural Revitalization Strategy.

3. Conceptual Framework

Society and institutions and family capital are the external and internal factors that influence households’ farmland transfer decisions, respectively. Family capital, as the household’s resources in actual socioeconomic activities, profoundly affects the household’s decision-making on major matters [50]. Household members can rationally allocate their limited resources under the leadership of the head of the household to produce cooperatively with a careful division of labor [51], in which all family members work together to improve the welfare of the household [52]. Sociologists have defined the concept of family capital more broadly, constructing a multidimensional framework of family capital that includes multiple dimensions such as economic, cultural, social, and human capital [53–55]. Under the impact of the comparison of agricultural and non-agricultural returns and external factors such as government subsidies, households’ farmland transfer behavior is essentially a redistribution of land resources based on their own family capital.

Based on the above compendium, this paper constructs a theoretical analysis framework of the role of family capital and external factors in farmland transfer (Figure 1). In general, households’ land transfer behavior is mainly influenced by internal support factors (family capital) and external control variables. Among them, the household capital variable is the main explanatory variable, which is divided into four components: human capital, economic capital, social capital, and cultural capital. Human capital emphasizes the household’s labor resources and productive capacity, economic capital refers to economic property and income, social capital involves the social network and social relationship resources that families have in their social activities; and cultural capital refers to the household’s knowledge and skill learning, vision, and problem-solving ability. Based on the specific analysis of family capital, this paper discusses the impact of family capital on farmers’ participation in farmland transfer from different dimensions.
3.1. Family Capital

3.1.1. Human Capital

Human capital mainly describes the situation of the family labor force and the structure of labor division. Different human capital leads to differences in the division of labor and a family’s production needs, thereby causing the family to make different decisions. On the one hand, non-agricultural employment plays a positive role in farmland transfer by reducing the numbers in the agricultural labor force and the high dependence of family livelihoods on agricultural operations [56–58]. However, the family collaborative production mode with a division of labor [59] and the advances in new agricultural mechanization and production technology create a substitution effect, compensating to a degree for the loss of agricultural labor [60], and leading peasant households to take into account both agricultural production and non-agricultural work. This may weaken the impact of non-agricultural employment on farmland transfer to a certain extent. On the other hand, in the context of China’s aging population [61–63], agricultural production has certain requirements in terms of labor quality [64]; therefore, aging rural households and those with low-quality labor resources choose to transfer the land out because they are finding it difficult to continue agricultural production. At the same time, however, the older members of the rural labor force have a relatively high dependence on the land security function due to the difficulty of securing non-agricultural employment, which may reduce their enthusiasm for land transfer. Based on the above theoretical analysis, this paper proposes Hypothesis 1:

**Hypothesis 1 (H1).** The higher the human capital of farmers, the higher the probability of land transfer.

3.1.2. Economic Capital

Economic capital is mainly reflected in the economic level and production basis of households. The differences in family economic situations will also affect the households’ choices in terms of production mode and scale. The transfer of rural labor force members to non-agricultural activities regulates the family income structure, and richer households’ dependence on traditional agricultural production is reduced, thus increasing the possibility of land transfer [65]. With the continuous development of new agriculture in China, the traditional small-scale farming mode has been unable to meet current agricultural production needs, and the positive role of agricultural mechanization is becoming more significant [66]. Farmers with advanced agricultural machinery are more inclined to transfer into land for large-scale agricultural operations. In addition, families with certain economic resources are more able to transfer into land to expand agricultural production because of the need
for significant investment in the early stages. Based on the above theoretical analysis, this paper proposes Hypothesis 2:

**Hypothesis 2 (H2).** *The higher the economic capital of farmers, the higher the possibility of land transfer.*

### 3.1.3. Social Capital

Social capital mainly describes the relationship network whereby the family can acquire effective resource information, which affects the family’s comprehensive judgment and decision-making. Family social capital may play a key role in the acquisition of individual and family resources through social networks [67]. In the traditional rural society, rich social networks have a significant impact on land transaction forms, land rental prices [68], and the adoption of agricultural production technologies [69]. They provide families with more efficient communication, financial support, and development opportunities [70], thus effectively aiding farmers’ land transfers and the expansion of agricultural production. Based on the above theoretical analysis, this paper proposes Hypothesis 3:

**Hypothesis 3 (H3).** *The higher the social capital of farmers, the higher the probability of land transfer.*

### 3.1.4. Cultural Capital

Cultural capital is mainly reflected in the educational level, knowledge, and skills learning of peasant households, and the family’s vision and ability to solve problems also affect behavior. Farmers with higher educational levels and more emerging skills, such as using the internet, are more likely to secure non-agricultural employment, while those with lower educational levels and lacking skills are more dependent on agricultural production, and can only increase their benefits by expanding the scale of agricultural operation. Therefore, land resources tend to transfer from farmers with higher educational levels and sufficient skills to those with lower educational levels and who lack skills [71,72]. Based on the above theoretical analysis, this paper proposes Hypothesis 4:

**Hypothesis 4 (H4).** *The higher the cultural capital of farmers, the higher the possibility of land transfer.*

### 3.2. External Support

In addition to family capital as the main explanatory variable, the behavior of farmland transfer will also be affected by external factors from society. In this study, external factors, including government subsidies, social security, village characteristics, and regional situations, are set as control variables. Government subsidies mainly refer to various subsidies issued by the government, including rural subsistence allowances and subsidies for agriculture, forestation, ‘Five Guarantees’ families, and extremely poor households. Against a background of vigorously promoting the Rural Revitalization Strategy, various subsidies issued by the government for rural areas have played a specific role in ensuring farmers’ basic livelihoods and encouraging enthusiasm for agricultural production [65,73,74], which is conducive to promoting the development of rural land transfer and agricultural moderate-scale operations as a whole. Social security mainly includes medical insurance and endowment insurance. As the basic means of production and the focus of agricultural operations, farmland plays an important role in guaranteeing the family’s basic livelihood, in terms of both income and pension. Due to the fact that for a long time there was no rural social security system, land has become a substitute for farmers’ social security [19]. With the continuous improvement of China’s social security system in recent years, dependence on the economic and security functions of rural land has gradually begun to weaken [20,75]. The development of the social security system is therefore, in theory, conducive to promoting the process of rural land transfer. However, due to the
current limited level of social security, the basic security function of farmland has not been completely replaced [76], which may therefore slow the development of land transfer.

Village characteristics mainly describe the topography of villages, and the regional situation mainly describes the heterogeneity of economic and social conditions among different regions in China. The overall situation of the village and region where the peasant households are located will also have an impact on farmland transfer due to the difficulty of farming and the different levels of regional economic development.

4. Data and Methods
4.1. Data Source
The data used in this study come from the 2018 China Family Panel Studies (CFPS) organized and implemented by Peking University. CFPS is a nationwide comprehensive social tracking survey project, focusing on many research topics such as urban and rural society, economy, population, family, and education. The CFPS project baseline surveys have been officially carried out since 2010, and the sample covers 25 provinces, cities, and autonomous regions in China. The administrative division and socioeconomic level are taken as the main stratified variables in the survey, and a multi-stage, implicit stratified, and proportional probability sampling method is adopted. The families and related members defined in the baseline survey are taken as the permanent tracking targets. The data used in this study are the most recent current public data in CFPS, and the samples best reflect the development of and changes in rural China as a whole.

To meet the research needs, this study preprocessed the sample data. Using family ID numbers, the family data and the personal data in the database were matched and merged, and only sample households with agricultural household registration and contracted farmland were retained. In order to ensure the integrity of the required data, the missing data for some samples were supplemented using previous CFPS tracking survey data. As a result of this data preprocessing, including screening and elimination, 4923 effective samples were finally obtained.

4.2. Variable Selection

Based on the previous theoretical analysis of family capital and combining this with the results of existing research, this study carried out the setting and selection of relevant variables as shown in Table 1.

Table 1. Selection and description of the variables.

| Variables            | Definition                                      | Mean | Std. Err. |
|----------------------|-------------------------------------------------|------|-----------|
| Farmland transfer    | Farmland transfer out 1 = yes; 0 = no           | 0.19 | 0.39      |
|                      | Farmland transfer in 1 = yes; 0 = no            | 0.12 | 0.33      |
| Human capital        | Non-agricultural labor proportion %            | 0.32 | 0.29      |
|                      | Average age of family                          | 48.47| 13.36     |
|                      | Average health of family                        |      |           |
|                      | Self-rated health level: 1–5                   | 2.92 | 0.97      |
| Economic capital     | Per capita net income of family                | 9.18 | 0.98      |
|                      | Value of agricultural machinery                | 3.15 | 4.01      |
|                      | Net assets of family                           | 11.69| 2.10      |
Table 1. Cont.

| Variables                  | Definition                                      | Mean  | Std. Err. |
|----------------------------|-------------------------------------------------|-------|-----------|
| Social capital             |                                                 |       |           |
| Human relationship expenditure | CNY (logarithmic processing)                      | 7.10  | 2.41      |
| Family relationship level  | Self-rated level: 1–10                           | 7.12  | 2.05      |
| Family status              | Self-rated level: 1–5                            | 3.29  | 1.11      |
| Cultural capital           |                                                 |       |           |
| Average educational years  | Years                                           | 5.90  | 3.36      |
| Average frequency of internet learning | 0 = never; 1 = once a few months; 2 = once a month; 3 = 2–3 times a month; 4 = 1–2 times a week; 5 = 3–4 times a week; 6 = almost every day | 0.81  | 1.16      |
| Control variable           |                                                 |       |           |
| Government subsidies       | Access to government subsidies                   | 1 = yes; 0 = no | 0.66  | 0.48      |
| Social security            |                                                 |       |           |
| Participation rate of medical insurance | %                                                | 0.87  | 0.23      |
| Participation rate of endowment insurance | %                                               | 0.45  | 0.38      |
| Village characteristics    | Village landform                                 | Virtual variables | 1 = plain; 2 = hill; 3 = high mountain; 4 = others | 1.89  | 0.94      |
| Regional situation         | Regional type                                   | Virtual variables | 1 = eastern region; 2 = central region; 3 = western region | 2.01  | 0.84      |

4.2.1. Dependent Variables

This study took farmland transfer behaviors as the dependent variables for empirical research, which can be divided into farmland transfer out and farmland transfer in. According to the farmers’ specific behaviors, ‘whether to transfer out of farmland’ and ‘whether to transfer into farmland’ were used as the measurement items of the explained variables.

4.2.2. Independent Variables

According to the theoretical analysis framework, the explanatory variables are human capital, economic capital, social capital, and cultural capital. Human capital mainly describes the situation of the family labor force and the structure of labor division, so the proportion of family non-agricultural labor, the average age, and the average health of family members were selected as the observation variables for this study [77–80]. Economic capital mainly describes the family’s existing economic level, and the family per capita net income, the value of agricultural machinery, and the family’s net assets were selected as the measurement indicators [81,82]. Social capital mainly describes the relationship network through which the family can acquire effective resource information, and this study selected human relationships expenditure, family relationship levels, and family status as specific indicators [83–86]. Cultural capital mainly describes the family’s overall educational level and skills, so average years of education and average frequency of internet learning were selected as indicators in this study [87–89].
The study also set up control variables, which mainly comprise government subsidies, social security, village characteristics, and regional situations. Government subsidies mainly refer to various types of rural subsidies issued by the government, and ‘whether government subsidies were being received’ was used as the indicator [28]; social security mainly consists of the participation rate in medical and endowment insurance [26]. In addition, the virtual variables of village landforms and regional types were used as indicators of village characteristics and regional situation [16]. The regional type is categorized according to the province where the sample is located, referring to the standard economic belt divisions of China’s National Bureau of Statistics.

4.3. Methods

Since the dependent variables are ‘whether to transfer out of farmland’ and ‘whether to transfer into farmland’, such variables are typical binary discrete variables, which are suitable for a binary selection model [90], so the detailed model is formulated as follows:

\[
FT_1 = a_0 + \sum \beta_i FC_i + \sum \delta_j controls_j + \epsilon_1
\]  
\[
FT_2 = c_0 + \sum \gamma_i FC_i + \sum \eta_j controls_j + \epsilon_2
\]

where \(FT_1\) and \(FT_2\) refer to the behavior of farmland transfer out and transfer in respectively, \(FC_i\) represents a series of explanatory variables contained in family capital, \(controls_j\) represents control variables, \(a_0\) and \(c_0\) represent constants, \(\beta, \delta, \gamma,\) and \(\eta\) represent regression coefficients, and \(\epsilon_1\) and \(\epsilon_2\) represent random error terms. Details of variables and their definitions are shown in Table 1.

5. Results

5.1. Descriptive Statistics

As shown in Table 2, 19.3% of sample farmers participated in farmland transfer out, of which 8.9% transferred out part of their farmland and 10.4% transferred out all of it. In addition, 12.1% of sample farmers participated in farmland transfer in, bringing the overall participation rate in land transfer to 31.4%. In general, the land transfer rate of these sample farmers was still at a low level in terms of the policy goal of promoting moderate-scale agricultural operations. Among the sample farmers who transferred out of farmland, nearly half of them chose to transfer out only part of their holdings; the remaining farmland was reserved; they continued to carry out agricultural production, and the guarantee function of farmland remained strong for most farmers. From the overall conditions of the variables in Table 1, the average age of the sample households was 48.47 years old, with the age structure profile gradually becoming older. The average family health level was 2.92, which is in the lower middle level. The overall low level of labor quality of the sample households may have imposed restrictions on households’ participation in land transfer. The increase and accumulation of household economic income provides the possibility for households to withdraw from land and agricultural production, while the purchase and utilization of agricultural machinery facilitates households to reduce labor costs and expand the scale of agricultural production. The overall level of social inputs, interpersonal relationships and perceived family status of the sample farmers was relatively high, which may have brought more abundant resources and ways for households to participate in agricultural land transfer. The average family educational period was 5.9 years, the overall educational level was low, and non-agricultural employment skills were insufficient. Meanwhile, the relatively low average level of frequency of using the internet for learning among the sample households indicates that most households had relatively conservative perceptions and limited ability to acquire knowledge and information using emerging online technologies, which led to a low participation rate in land transfer. Therefore, the diverse family capital of the sample households could all be causes affecting the participation of households in land transfer.
Table 2. Farmers’ participation in farmland transfer.

| Farmland Transfer Out | Farmland Transfer In |
|-----------------------|----------------------|
|                       |                       |
| No Transfer Out        | Transfer Out          | No Transfer In | Transfer In |
| Partial               | All                  |
| Households            | 3975                 | 439           | 509         | 4325        | 598         |
| Proportion            | 80.7%                | 8.9%          | 10.4%       | 87.9%       | 12.1%       |

5.2. Empirical Results

Based on the above settings, this study used Stata 16 to estimate the relevant data by probit regression and logit regression respectively. Before the formal regression analysis, a multiple collinearity test was conducted due to the possibility of internal correlation between variables. The test results showed that the VIF values were far less than 10, indicating that there was no serious collinearity problem between variables, and the degree of collinearity was within a reasonable range. Therefore, this study conducted a formal regression estimation to further explore the impact of family capital on farmers’ farmland transfer behavior. The overall fitting effect of the model was good, and it passed the significance tests at the 1% level. The specific results are shown in Table 3.

Table 3. Estimation results of the effect of family capital on land transfer of households based on Logit and Probit models.

| Variables                             | Farmland Transfer Out | Farmland Transfer In |
|---------------------------------------|-----------------------|----------------------|
|                                       | Probit Model          | Logit Model          |
|                                       | Probit Model          | Logit Model          |
| Non-agricultural labor proportion     | 0.273 ***             | 0.444 ***            |
|                                       | (0.083)               | (0.143)              |
| Average age of family                 | 0.013 ***             | 0.023 ***            |
|                                       | (0.002)               | (0.004)              |
| Average health of family              | −0.084 ***            | −0.148 ***           |
|                                       | (0.024)               | (0.042)              |
| Per capita net income of family       | 0.131 ***             | 0.230 ***            |
|                                       | (0.027)               | (0.048)              |
| Value of agricultural machinery       | −0.061 ***            | −0.109 ***           |
|                                       | (0.006)               | (0.011)              |
| Net assets of family                  | −0.011                | −0.021               |
|                                       | (0.010)               | (0.017)              |
| Human relationship expenditure        | 0.007                 | 0.012                |
|                                       | (0.010)               | (0.017)              |
| Family relationship level             | 0.001                 | 0.001                |
|                                       | (0.011)               | (0.019)              |
| Family status                         | −0.026                | −0.043               |
|                                       | (0.020)               | (0.036)              |
| Average educational years             | 0.017 **              | 0.029 **             |
|                                       | (0.008)               | (0.013)              |
| Average frequency of internet learning| 0.062 ***             | 0.112 ***            |
|                                       | (0.021)               | (0.037)              |
Table 3. Cont.

| Variables                                | Farmland Transfer Out | Farmland Transfer In |
|------------------------------------------|-----------------------|----------------------|
|                                          | Probit Model          | Logit Model          | Probit Model          | Logit Model          |
| Access to government subsidies           | 0.004                 | 0.005                | 0.104 *               | 0.193 *               |
|                                          | (0.046)               | (0.081)              | (0.054)               | (0.102)               |
| Participation rate of medical insurance  | −0.163                | −0.298 *             | 0.225 *               | 0.419 *               |
|                                          | (0.100)               | (0.173)              | (0.129)               | (0.248)               |
| Participation rate of endowment insurance| −0.183 ***            | −0.308 ***           | 0.032                 | 0.063                 |
|                                          | (0.062)               | (0.109)              | (0.070)               | (0.135)               |
| Village landform                         | Yes                   | Yes                  | Yes                   | Yes                   |
| Regional type                            |                       |                      |                       |                       |
| _cons                                    | −2.148 ***            | −3.646 ***           | −1.770 ***            | −3.421 ***            |
|                                          | (0.300)               | (0.527)              | (0.342)               | (0.666)               |
| Observations                             | 4923                  | 4923                 | 4923                  | 4923                  |
| Prob > chi2                              | 0.000                 | 0.000                | 0.000                 | 0.000                 |
| Pseudo R²                                | 0.075                 | 0.075                | 0.070                 | 0.070                 |

Note: The standard errors are given in parenthesis. * p < 0.1, ** p < 0.05, and *** p < 0.01.

5.2.1. The Impact of Family Capital on Farmers’ Farmland Transfer Out

As shown in Table 3, different family capital variables had different impacts on farmers’ farmland transfer out. In terms of human capital, both the proportion of non-agricultural labor and the average family age had a positive impact on farmland transfer out with a significance level of 1%, while the average family health level had a negative impact at a significance level of 1%. Families with a higher proportion of non-agricultural labor were more inclined to transfer out farmland, because more of their labor force had been freed up to engage in non-agricultural work. The increasingly older age structure and the decline in the availability of agricultural labor also encouraged farmers to transfer out land. In addition, the farmers tended to transfer out of farmland due to poor family health levels and the consequent weaker ability to engage in agricultural production.

In terms of economic capital, per capita household net income had a positive impact at a significance level of 1%, while the value of agricultural machinery owned by households was negatively significant at a 1% level. The impact of household income on farmland transfer was mainly reflected in the following aspects. Farmers with higher incomes tended to rely less on farmland for basic security such as livelihood and pension, and non-agricultural income was often higher than agricultural income, so households with higher incomes were often positively encouraged to transfer farmland out. Moreover, with the continuous popularization of the mechanization of agricultural production, traditional small-scale farming is unable to adapt to current social developments due to its low efficiency, so farmers with less agricultural machinery were more inclined to transfer out their agricultural land.

In terms of social capital, none of the relevant factors significantly affected farmland transfer out, and this result also confirms the findings in other relevant research [16]. With the continuous development of the land transfer market in China, the transfer of relevant transaction information becomes smoother. The main body of land transfer not only includes traditional farmers; the involvement of professional cooperatives, enterprises, and other new agricultural management participants is also developing steadily. The scope of land transfer is constantly expanding, the farmland transaction market is becoming more and more mature, and the transfer participants of agricultural land are often actively seeking land through various ways. Family social capital, therefore, does not significantly affect farmland transfer out.
In terms of cultural capital, the average educational years and the average frequency of internet learning passed the significance tests at the 5% and 1% levels respectively. A family with a higher educational level has more opportunities to engage in different types of work due to its stronger working skills, so its dependence on land will be reduced and it will be more inclined to transfer out of land. In the current era of modern information technology, the internet is increasingly becoming an important medium and tool for family production and life. Learning through the internet can not only further enhance the knowledge and skills of the labor force, but also broadens horizons and expands understanding of the external society, encouraging an easier acceptance of new things and making families participate more actively in the transfer of farmland.

In addition, the endowment insurance participation rate was also negatively significant at the 1% level in the control variables, which is in contrast to the view that social security can weaken the function of land security and promote farmland transfer. The reason is that the current benefits of rural endowment insurance are limited, and only provide weak security for farmers; those receiving such benefits, which are far lower than the income obtained from farming, would find it very difficult to meet their basic living needs. Therefore, it cannot replace the security function of land [65,91]. Meanwhile, eligibility for rural endowment insurance further strengthens the rural household registration effect and the farmers’ recognition of their identity. In addition, the premiums paid by insured households increase cash expenditure and generate no immediate income for farmers [24], so the participation rate of endowment insurance inhibits farmland transfer out.

5.2.2. The Impact of Family Capital on Farmers’ Farmland Transfer In

According to the regression results (Table 3), it can be seen that family capital variables had different effects on farmland transfer in. For human capital, the average household age had a negative impact on farmland transfer in with a significance level of 1%. When we examine these findings alongside the actual conditions in rural China, we need to bear in mind the fact that agricultural production has certain requirements in terms of the physical strength of the labor force. The older the family labor force, the more its ability to engage in agricultural production is reduced, so the less likely it is to transfer into farmland. Compared with farmland transfer out, the effect of the proportion of non-agricultural labor on transfer in was limited, and the reason may be that the popularization of agricultural machinery has replaced the need for agricultural labor to a certain extent.

In terms of economic capital, the value of agricultural machinery owned by households has positively affected farmland transfer in at a significance level of 1%, and household per capita net income was also positively significant at a 10% level. With the continuous innovation of agricultural production technology, mechanized production is now widespread and greatly improves agricultural production capacity compared with traditional small-scale farming. Therefore, farmers well equipped with agricultural machinery are more inclined to transfer into agricultural land, so as to carry out large-scale agricultural production and enhance productivity. In addition, large-scale agricultural production has certain requirements in terms of families’ economic standing, due to the large amount of investment in agricultural production required in the early stages. Farmers with higher family incomes clearly have greater ability to cope with the need for agricultural production investment and their superior economic standing also makes them much more risk resistant.

In terms of social capital, the social expenditure and family status of peasant households were positively significant at the 1% and 5% levels respectively. In contrast to the diversification of farmland transfer-out participants, the transfer-in sources of farmland were mainly relatives, villagers, and other acquaintances, and the transfer method was often verbal agreement. Good social relations can enhance the trust of both parties, thus reducing the transaction costs of land transfer [67], so there are certain requirements for family social relations. In addition, a good social network can also improve farmers’ efficiency in obtaining information and increase their ability to obtain funds [65], thus providing effective support for farmers to transfer into land and expand production. The
social relationship network of peasant households can be best reflected by the human relationship expenditure and social status of peasant households, which are used to maintain and broaden the social relationship network. Therefore, the richer a peasant household’s social resources, the more opportunities it will have to transfer into farmland.

In terms of cultural capital, the results show that the variable of average educational years had a negative impact with a significance level of 1%. A labor force with low educational levels and limited employment skills leads to fewer non-agricultural work opportunities and a high dependence on agricultural production. The peasant households will therefore transfer in more land to engage in larger-scale agricultural production, within the scope of their ability, to increase their income.

In addition, the regression results also show that the control variables of government subsidies and the medical insurance participation rate passed the significance tests positively. In recent years, the Chinese government has issued policies to vigorously support the development of agriculture and rural areas by providing subsidies to the rural poor and to agricultural production. The relevant government subsidies not only provide a certain degree of economic support, but also spark the farmers’ enthusiasm for engaging in agricultural production. To some extent, the popularization of rural medical insurance guarantees improves the health level of rural households, thereby further improving the productivity of family farming.

5.3. Robustness Test

In the above empirical analysis process, this study draws on the methods used by most existing research, assumes that the behaviors of farmland transfer out and transfer in are independent farmers’ behavioral decisions, and establishes a model regression analysis. However, some studies conclude that the decisions of farmland transfer out and transfer in are the judgments made by farmers in a process of continuous weighing, and that there may be a certain correlation between the two behavioral decisions. This would mean that the transfer-out and transfer-in behaviors are not independent of each other, and failing to take into account any such possible endogenous correlation could well distort the results [92]. An examination of our sample showed very few households who transferred in and out at the same time. Despite the small number of such instances, a Biprobit model was applied to identify possible problems with endogeneity [93]. The regression results (Table 4) show that the variable significance and analysis results are consistent with the original results. This means that there is a certain correlation between farmland transfer-out and transfer-in behaviors, but the relevant factors of family capital still significantly promote farmland transfer after considering the relevant situations. The original estimation results are basically the same as those of the robustness test, and the analysis results are still valid.

Table 4. Estimation and test result with Model Biprobit.

| Variables | Farmland Transfer Out | Farmland Transfer In |
|-----------|-----------------------|---------------------|
| Family capital | Human capital | Non-agricultural labor proportion | 0.275 *** | −0.152 |
| | | (0.083) | (0.096) |
| | | Average age of family | 0.013 *** | −0.014 *** |
| | | (0.002) | (0.003) |
| | | Average health of family | −0.083 *** | −0.036 |
| | | (0.024) | (0.028) |
Table 4. Cont.

| Variables                      | Farmland Transfer Out | Farmland Transfer In |
|--------------------------------|-----------------------|----------------------|
| Economic capital               |                       |                      |
| Per capita net income of family| 0.130 ***             | 0.056 *              |
|                               | (0.027)               | (0.030)              |
| Value of agricultural machinery| −0.061 ***            | 0.066 ***            |
|                               | (0.006)               | (0.006)              |
| Net assets of family           | −0.011                | 0.002                |
|                               | (0.010)               | (0.013)              |
| Social capital                 |                       |                      |
| Human relationship expenditure | 0.007                 | 0.040 ***            |
|                               | (0.010)               | (0.012)              |
| Family relationship level      | 0.002                 | 0.005                |
|                               | (0.011)               | (0.012)              |
| Family status                  | −0.026                | 0.056 **             |
|                               | (0.020)               | (0.023)              |
| Cultural capital               |                       |                      |
| Average educational years      | 0.017 **              | −0.024 ***           |
|                               | (0.008)               | (0.009)              |
| Average frequency              | 0.060 ***             | −0.037               |
| of internet learning           | (0.021)               | (0.024)              |
| Control variable               |                       |                      |
| Access to government subsidies | 0.006                 | 0.104 *              |
|                               | (0.046)               | (0.054)              |
| Participation rate             | −0.158                | 0.233 *              |
| of medical insurance           | (0.100)               | (0.129)              |
| Participation rate             | −0.184 ***            | 0.028                |
| of endowment insurance         | (0.062)               | (0.070)              |
| Village landform               | Yes                   | Yes                  |
| Regional type                  | Yes                   | Yes                  |
| _cons                          | −2.132 ***            | −1.754 ***           |
|                               | (0.300)               | (0.341)              |
| /athrho                        |                       |                      |
|                               | −0.177 ***            |                      |
|                               | (0.039)               |                      |
| Observations                   | 4923                  |                      |

Note: The standard errors are given in parenthesis. * p < 0.1, ** p < 0.05, and *** p < 0.01.

6. Discussion

6.1. Perspectives on Family Capital and the Generalizability of the Study

Land has long been an important element for households to survive. For individuals, land is responsible for production functions, livelihood support, and property transformation, and has strong irreplaceability [94]. For the macro economy and society, an efficient allocation of land resources is conducive to achieving the goal of food security and promoting rural revitalization and urban–rural synergistic development [95–97]. However, due to the reality of China’s large population, land fragmentation has become an important cause of inefficient allocation of land resources [98]. In the context of a liberalized transfer system, the transfer of farmland by farmers is essentially a redistribution of land resources under a limited stock of family capital. Consequently, this paper associates household capital with the land element and focuses on the impact of households’ human capital, economic capital, social capital, and cultural capital on land transfer, which has good practical implications for how households can better optimize the allocation of land. Additionally, this paper applies a well-representative sample of data to measure land transfer from the perspective...
of transfers in and transfers out respectively, and controls for regional heterogeneity, thus the results obtained are generalized for the promotion of land transfer policies nationwide.

6.2. Comparison of Social Capital Research Results with Existing Studies

In the results of this paper, human capital, economic capital, and cultural capital all have significant effects on both farmland transfer out and transfer in, while social capital only plays a vital role in farmland transfer in. In comparison with existing studies, the studies of Yang et al. [50], Ji and Cai [85], Chen and Wang [86], and Peng et al. [99] found a significant effect of social capital on farmland transfer out, but the direction was inconsistent. The results of Qian and Qian [16] showed that there was no significant effect of social capital on the transfer of arable land, whether transferred in or out, but social capital positively affects land transfer out by promoting non-agricultural employment. In general, the studies that have examined the impact of social capital on land transfer in or out have reached heterogeneous conclusions. On the one hand, this is influenced by the representativeness of the data sample, with some studies being limited to a particular village or a particular city. On the other hand, the variables used in these studies to characterize social capital are not entirely coherent. Future research can consider investigating the mechanism of the mediating effect of social capital on land transfer, or further exploit the mechanism of the influence of social capital on land transfer from the perspective of farmer heterogeneity (e.g., through part-time degree grouping).

6.3. Internet Penetration and Farmers’ Non-Farm Employment

With the continuous development of the information age, the role of information technology, represented by the internet, in improving the efficiency of agricultural production has become more and more obvious [100]. This study shows that the use of the internet also has a fundamental impact on households’ farmland transfer. As a new information medium, the internet provides farmers with opportunities for effective learning and non-agricultural employment. On the one hand, farmers can learn skills to compensate for their low educational levels; on the other hand, diversified forms of employment derived from the internet, such as telecommuting and online entrepreneurship [101], create more possibilities for farmers to find non-agricultural employment. Meanwhile, the internet can also provide an effective channel for the dissemination of farmland transfer information, mitigate the dependence of land transfer on traditional social networks, and provide a diversified platform for the development of the farmland transfer market. It is expected that information technology will gradually become a critical force in promoting rural revitalization and achieving agricultural modernization in the future.

6.4. Advantages of Methods and Limitations of Data

The direction of the influence of family capital on farmland transfer in and transfer out may be inconsistent; thus we distinguish between transfer in and transfer out to construct the model showing the relationship between family capital and land transfer respectively, instead of collectively referring to farmland transfer. Based on the characteristic that the dependent variable is a binary variable, logit and probit models were applied in this paper, and the results are basically consistent. In addition, we also considered possible endogeneity issues and applied Biprobit for robustness checks, which supported the baseline model results and yielded some interesting and revealing answers.

We believe that while our empirical findings provide sufficient support for the theoretical framework, using panel data to detect the impact of and changes in family capital on agricultural land transfers may yield more targeted policy insights. However, China’s large population size and wide range of mobility make it quite challenging to track each household in a large sample to conduct the survey. Therefore, when China’s urbanization process stabilizes, it will be more feasible to conduct research using panel data with long-term tracking.
7. Conclusions and Policy Implications

Using CFPS microdata and based on systematic theoretical analysis, this study provides an in-depth discussion of the relationship between family capital and households’ participation in farmland transfer, and the following conclusions are obtained. Human capital, economic capital, and cultural capital have significant effects on both farmland transfer in and transfer out, while social capital only plays an important role in farmland transfer in. Specifically, rural households with high non-agricultural labor quality, good family economic foundations, and high educational levels were more inclined to transfer out of farmland; households with sufficient agricultural labor, good agricultural economic foundation, an abundant household social network, and low educational attainment were more inclined to transfer into farmland to expand agricultural production. Moreover, the participation rate of endowment insurance has a disincentive effect on the transfer out of farmland, while government subsidies and the participation rate of medical insurance has a positive effect on the transfer in of farmland.

Based on the above findings, some possible policy implications present themselves. First, the results of the human capital variables indicate that farmers with high quality non-agricultural labor and high education levels are more likely to transfer out of farmland. However, most farmers are currently engaged in non-agricultural occupations that are rough and inefficient, and non-agricultural employment opportunities are mostly seasonal or intermittent. Low non-farm income or unstable non-farm employment opportunities hinder further advancement of farmland transfer. Therefore, the government should strengthen off-farm employment training and create stable off-farm employment opportunities in order to facilitate smooth land transfer.

Second, the positive impact of social capital on the transfer in of farmland is likely due to the lower transaction costs and lower moral hazard in the “community of acquaintances” compared to those of unfamiliar transactions. This suggests that land transfer transactions without institutional safeguards face higher transaction costs and risks. Therefore, the government should improve the farmland system and build a land transfer trading platform to promote the transfer of farmland to households with a good agricultural base to realize large-scale management and improve land returns.

In addition, given that farmland transfer has great positive effects on both microfarmers and the macro-institutional system, the lack of social security networks hinders households from participating in land transfer. Consequently, the government should strengthen social security networks and build another social security wall in addition to land security, so as to improve the productivity and profitability of individuals while promoting the multiple goals of narrowing the urban–rural income gap, reducing the pressure on food security, advancing rural revitalization, and urban–rural synergistic development.

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Conflicts of Interest: The authors declare no conflict of interest.
Note

1 Initiated in the 1950s, the ‘Five Guarantees’ scheme guarantees elderly people proper food, clothing, medical care, housing, and funeral expenses where they are unable to provide these things for themselves.

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