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**Published in:**

Land

**Published:** 01/07/2023

**Document Version:**

Final Published version, also known as Publisher's PDF, Publisher's Final version or Version of Record

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**Publication record in CityU Scholars:**

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**Published version (DOI):**

[10.3390/land12071318](https://doi.org/10.3390/land12071318)

**Publication details:**

Han, W., Fu, Y., & Sun, W. (2023). Farmland Transfer Participation and Rural Well-Being Inequality: Evidence from Rural China with the Capability Approach. *Land*, 12(7), Article 1318. <https://doi.org/10.3390/land12071318>

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## Article

# Farmland Transfer Participation and Rural Well-Being Inequality: Evidence from Rural China with the Capability Approach

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**Abstract:** Participation in the farmland transfer market provides farmers with diversified opportunities which would generate a range of social and economic benefits to improve their overall well-being. However, the previous studies have disproportionately focused on the income increase of farmers' participation while ignoring its impact on other dimensions significantly contributing to the well-being gap of farmers with different social and economic characteristics. Based on the capability approach, this study constructed a multi-dimensional well-being assessment framework and employed the fuzzy method to evaluate the well-being level of rural households. By employing the national rural survey data from China, this paper examined the impact of farmland transfer participation on the well-being of farmers with different livelihoods. Further, it explored the influence of farmland transfer participation on the well-being gap of farmers by using the quantile regression method. Our results suggest that farmland transfer participation played a positive role in increasing farmers' well-being, while farmland transfer participation has no significant impact on farmers' well-being inequality. Meanwhile, the heterogeneity of farmers' livelihoods is the key factor for the differentiation of farmers' well-being.

**Keywords:** farmland transfer; well-being inequality; capability approach; quantile regression



**Citation:** Han, W.; Fu, Y.; Sun, W. Farmland Transfer Participation and Rural Well-Being Inequality: Evidence from Rural China with the Capability Approach. *Land* **2023**, *12*, 1318. <https://doi.org/10.3390/land12071318>

Academic Editor: Libang Ma

Received: 4 April 2023

Revised: 28 April 2023

Accepted: 4 May 2023

Published: 30 June 2023

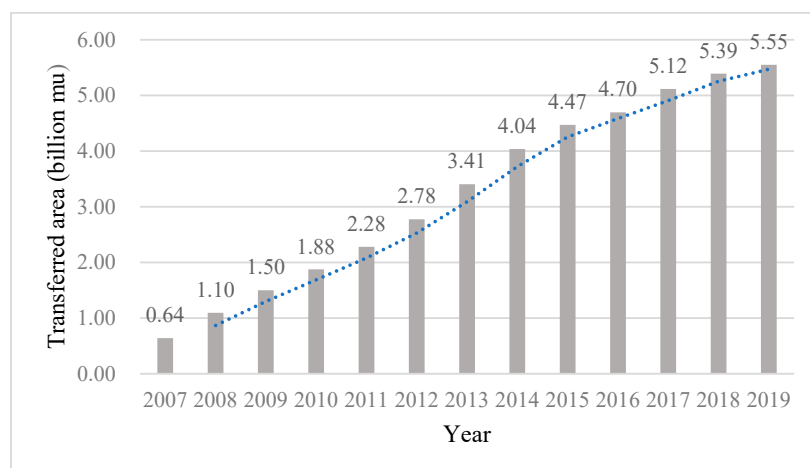


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## 1. Introduction

Farmland is the most essential living resource for rural households in most countries worldwide. Farmland transfer is a crucial to the allocation and redistribution of rural resources in China. Starting with the reform of the household responsibility system (HRS) in 1978, the development of the farmland market has gradually gone through a process from “forbidden to transfer” to the legalization and universalization of farmland transfer. With the 40-year continuous reform, China's farmland transfer market has been quite active. Since 2007, the demand for farmland transfer has been increasing (see Figure 1), and the transfer scale has been growing continuously. In 2019, the scale of farmland transfer exceeded 37 million hectares, which is 8.67 times of that in 2007, reflecting the dramatic increase in China's farmland transfer market in the past ten years.

The per capita farm size in China is less than one hectare, which is less than 40% of the world average. The policy for long-term land contracting in China creates conditions for the stable development of the farmland transfer market, enabling farmers to enter or exit the farmland transfer market flexibly. Considering the equal distribution of rural households' share of contracted land in China, a booming and revitalized farmland transfer market creates opportunities for farming households to decide whether to participate in market transactions freely. Such autonomy in using their contracted land provides opportunities to improve their livelihood.



**Figure 1.** Change in the scale of the farmland transfer market in China from 2007 to 2019. (Unit: 1 mu = 0.067 ha). Source: Public data from the website of the Ministry of Agriculture and Rural Affairs.

Since the 1990s, farmland transfer has been receiving attention from Chinese scholars. Farmland is the most basic means of production for farmers, and whether they participate in the farmland transfer market is closely related to their livelihoods. Under the sustainable livelihood framework [1], increasing well-being is one of the achievements of livelihood outcomes. Many scholars have empirically analyzed the impact of farmland transfer participation on farmers' well-being, especially on their income. In Asia, Africa, and Europe, where arable land is heavily fragmented [2], farmland transfer (leasing/rental) is widely believed to promote household income and reduce poverty. Furthermore, participating in farmland transfer activity may also impact other dimensions of well-being in rural households. For example, using Amartya Sen's capability theory [3–7], a few scholars have researched the welfare effects of farmland transfer participation on rural households. However, the potential impact of farmland transfer on the comprehensive well-being other than income increase of rural households has not received enough attention from scholars.

Further, the differential impacts of farmland transfer participation on households with different livelihoods may lead to well-being inequality among rural households. Studies from many developing countries have shown that open markets for rental farmland can facilitate the transaction of land from inefficient to efficient producers [8,9]. However, this result has a differential impact across countries in different regions. For Africa and Latin America, where the initial size of farmland holdings is unequally distributed, farmland transfer is thought to promote equitable distribution of farmland among farmers and reduce inequality in landholdings [10–13]. In China, however, the initial allocation of land to rural households was relatively equal in the early 1980s [14]. The operation of the farmland transfer market has promoted the concentration of land, increasing heterogeneity in the allocation of farmland among rural households. It has a direct effect of widening the gap in farmers' income [15]. Furthermore, under restrictive conditions (e.g., limited access to credit for rural households), farmland markets may be more accessible for wealthy families to participate in [16]. Thus, the performance of farmland markets operating in different regions can have an unequal impact on the behavioral choices of rural households. We have not found any influential research on the effects of farmland transfer activity on the well-being gap among farmers from the micro level of rural households.

Based on the review of the above research, this paper attempts to fill the research gap by exploring the impact of farmland transfer participation on rural households' well-being and further revealing whether the differential impact narrows or widens the well-being gap among rural households. This study led to a deepened understanding of the impact of farmland transfer participation on the comprehensive well-being of rural households, and it can also assist policymakers when assessing whether farmland transfer policies are helpful in reducing rural inequality.

The rest of the paper is structured as follows: the second section is the theoretical foundation; the third section is the data and methodology; the fourth section is the results and discussion; and the last is the conclusion with policy implications.

## 2. Theoretical Analysis

### 2.1. The Concept and Measurement of Well-Being

Improving human well-being is the core goal of sustainable livelihoods [1]. The meaning of well-being has evolved over time and has been discussed by scholars in multiple fields. Generally, the concepts of happiness and well-being overlap considerably [17].

From the views of traditional welfare economics, well-being is generally considered to be measurable in monetary terms. In other words, well-being is the individual's evaluation of income, or more commonly, of the contribution of those goods and services that we can buy with money to the general well-being [18]. Rational choice theory argues that using income as a substitute for well-being is questionable. The concern for well-being began to expand to non-economic aspects that are difficult to measure in monetary terms. Since the 1930s, the new economic welfarists started to emphasize that "well-being" is determined by all members of society, advocating ordinal utility theory, in which the subjective well-being of people determines utility. Thus, in modern research, happiness, or subjective well-being (SWB), has become another measure of well-being that researchers are interested in. Research based on SWB has gradually attracted the attention of behavioral economists and psychologists.

The metrics adopted to quantify well-being vary considerably due to the different ways in which researchers conceptualize well-being. The dominant view of traditional welfare economics is to conceptualize well-being as a utility. It quantifies well-being using equivalent indicators, such as income or expenditure. Other indicators to quantify well-being are subjective well-being, such as quality of life that are widely used in sociology, psychology, and other disciplines. According to Ringen [19], people seek happiness through the choices they make in their lives. Considering the differences between the narrow and broad connotations of well-being defined by welfare economics and sociology, Ringen summarizes six approaches to quantifying well-being (see Figure 2). The capability approach is an indirect way to measure well-being with a broad connotation.

	Indirect	Direct
Narrow	(1) The income approach (2) The resource approach	(4) The expenditure approach (5) The consumption approach
Broad	(3) The capability approach	(6) The way of life approach

**Figure 2.** Typology of approaches to the measurement of well-being.

Amartya Sen developed the capability theory in the 1980s, replacing the utility view with a capability-centered view. Sen argued that individual well-being could be expressed through functionings and capabilities, which are defined as the well-being states of individuals in their actual and potential activities. Functionings are what a person "manages to do or to be," and they include achievements such as being well-nourished, being healthy, not suffering, being physically healthy, sleeping well, feeling good, enjoying emotions, and being away from a lack of self-respect, taking part in social life, and so on. These functionings make up a person's well-being and capabilities as a vector set of actual levels of achievement of various functional activities, which can reflect a person's level of well-being and freedom of choice [20]. Thus, capability, or the level of individual well-being, can be assessed by measuring the degree to which individuals achieve various functional activities.

The capability approach provides a framework for assessing individual well-being regarding function and capability. However, Sen deliberately avoids providing a list of relevant functionings needed for well-being assessment because the feasible framework he constructs is universal, and the choice of capability list is relevant to the purpose of the

study [21]. The capability approach has gained popularity among scholars in assessing inequality, poverty, individual well-being, or group well-being. In this study, we use the capability approach to evaluate the multi-dimensional well-being of farmers other than income.

2.2. The Impact of Farmland Transfer Participation on Well-Being Level of Rural Households

According to the sustainable livelihood (SL) framework, the pursuit of livelihood objectives and the way they use each livelihood capital (natural, human, physical, financial, and social capital) depend partly on individual preferences and partially on the vulnerability, the institutional environment, and organizational structures they face [1]. The land endowment is the most important natural resource for rural households in China. Access to farmland transfer market provides an opportunity for livelihood improvement for rural households.

For small farmers, due to the large earning gap between agricultural activities and non-agricultural employment. When the remaining labor force in the household has access to off-farm employment opportunities, the farmland transfer market allows farmers to choose to transfer out their farmland use rights to others so that they can transform their livelihoods through migration and participation in non-agricultural employment.

For farmers who depend on farmland activities, the rental cost of transferring farmland use rights is not high. They can lease a larger share of land through the transfer market to expand production scale and increase household productivity. For example, Jin and Deininger estimated that farmland transfer could increase household productivity by about 60% [12].

Improving well-being is one of the main livelihood outcome objectives listed by the DFID SL framework. The final well-being level of rural households depends on how a family achieves their livelihood strategy by using various assets. Access to the farmland transfer market creates conditions to change farmers’ livelihood strategy, leading to differences in the final well-being level. We draw a framework to show the theoretical impact of farmland transfer participation on the well-being level of rural households (Figure 3). We hypothesize that farmland transfer could result in an array of well-being consequences for farmers with different livelihood strategies, thereby affecting the well-being gap among farmers.

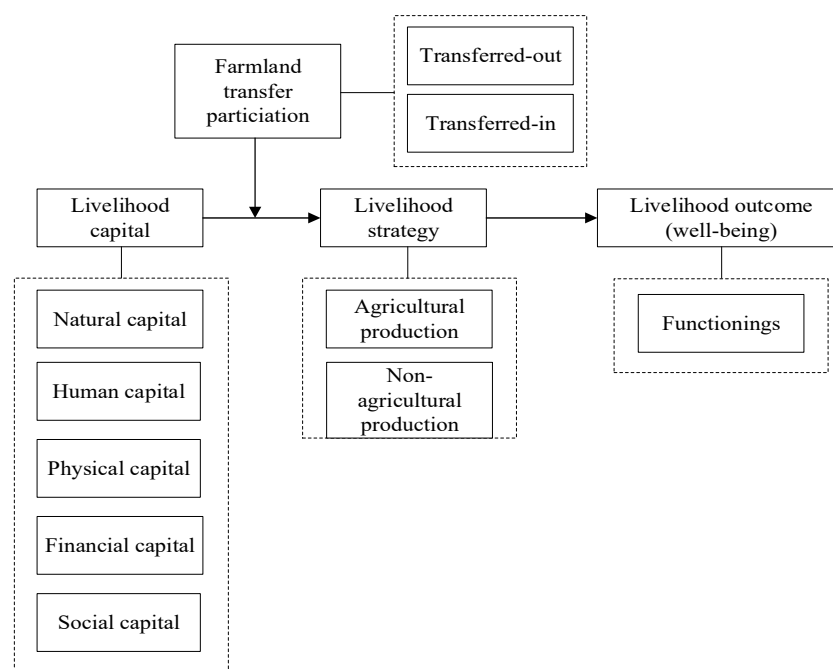


Figure 3. The theoretical impact of transfer participation on the well-being level of rural households.

### 3. Data and Methods

#### 3.1. Data Source

The data used in this paper are derived from the China Family Panel Studies (CFPS) database. The database is designed and organized by the Institute of Social Science Survey of Peking University. This database covers comprehensive information on Chinese family economic conditions, family relations, population migration, health conditions, etc. The CFPS sample adopts the multi-stage equal probability sampling method based on implicit stratification, covering 25 provinces of China, which is nationally representative. CFPS survey is conducted every two years. The CFPS2016 and CFPS2018 data available in 2018 and 2020 are used in this study.

#### 3.2. Measurement of Key Variables

##### (1) Farmland transfer participation

We employed farmland transfer decision variables to measure rural households' farmland transfer participation. According to households' specific participation decisions, we divided farmland transfer activities into two types, e.g., farmland transferred-out (FTO) activity and farmland transferred-in (FTI) activity.

##### (2) The measurement of well-being based on the capability approach

In the existing studies on the evaluation of the multi-dimensional well-being of specific groups with capability theory, there is no unified standard for the selection of a functioning list. Amartya Sen once pointed out that the choice of functionings depends on the research purpose and value judgment [22]. Considering the research aim, we select functionings that may be affected by farmland transfer theoretically to evaluate from the following aspects:

① Health conditions. Physical health is one of the basic functioning of human well-being. Whether rural households participate in farmland transfer is theoretically related to their health conditions. We evaluated the health status of rural households through subjective evaluation, physical changes, and hospitalization.

② Working conditions. Taking part in farmland transfer activity would affect household labor pattern and contributes to a diversified livelihood. However, whether the impacts of farmland transfer on household employment status are positive from the perspective of households' subjective perception remains to be further investigated. This study chooses primary indicators to evaluate rural households' satisfaction with different work to assess their emotional working conditions.

③ Psychological status. Chinese farmers generally take the land as a psychological bridge. Rural household farmland transfer behavior is closely related to individual farmers' dependence and emotional attachment to their contracted land. Although most rural households' participation in farmland transfer is rational, farmers may have negative emotions, such as a lack of income security and emptiness of work after transferring rural land to others. However, for some young and middle-aged farmers, their emotional attachment to the land is relatively weak. Engaging in land-based agricultural production may be a labor for them. After transferring the agricultural land, these farmers may get positive emotions of getting rid of the hard labor. Therefore, it is necessary to take the psychological status as a functional index. This study selects life faith, sleep status, feelings of pleasure, and loneliness to evaluate the psychological status of farmers.

④ Life satisfaction. Sen's capability approach focuses on the quality of life that individuals can achieve. The quality of life is comprehensive, reflecting people's overall situation of current life. How happy people are depends on how satisfied they are with their lives. Regarding the quality of life, subjectively obtaining happiness and well-being is the universal goal of human beings. Subjective well-being is an alternative indicator to measure life satisfaction [23]. This study selects emotional life satisfaction as the indicator.

The statistical summary of all primary indicators of different functional activities is displayed in Table 1.

**Table 1.** Statistical results of primary indicators of different functional activities.

Variable Name	Description	All Households	PA Households	AD Households	NAD Households	NA Households
Health conditions						
Health assessment	Whether the respondent's body can meet the needs of daily work and life: 1 = Not satisfied; 2 = General satisfied; 3 = fully satisfied.	2.91	2.68	2.86	2.93	2.92
Health change	The respondent's health changes in a recent year: 1. got worse; 2. no change 3. got better.	1.77	1.61	1.76	1.77	1.78
Hospitalization	Whether the respondent has been hospitalized in the past year. Yes = 1, No = 0	0.87	0.86	0.87	0.87	0.87
Work conditions						
Work satisfaction	The respondent's overall satisfaction with his/her current work: 1 = very dissatisfied; 2 = somewhat dissatisfied; 3 = neutral; 4. more satisfied; 5 = very satisfied.	3.55	3.37	3.54	3.54	3.55
Psychological status						
Faith in life	The respondent's evaluation of his/her faith in the future: 1 = usually pessimistic; 2 = sometimes pessimistic; 3 = neutral; 4 = sometimes optimistic; 5 = usually optimistic.	4.00	3.76	3.98	4.00	4.00
Sleep	Frequency of poor sleep in the past week for the respondent: 0.5 = hardly ever (no more than 1 day); 1.5 = sometimes (1–2 days); 3.5 = usually (3–4 days); 6 = almost (6–7 days).	4.00	1.75	1.65	1.59	1.69
Feel pleasure	Frequency of feeling pleasure in the past week for the respondent: 0.5 = hardly ever (no more than 1 day); 1.5 = sometimes (1–2 days); 3.5 = usually (3–4 days); 6 = almost (6–7 days).	3.42	3	3.39	3.41	3.45
Feel lonely	Frequency of feeling lonely in the past week for the respondent: 0.5 = hardly ever (no more than 1 day); 1.5 = sometimes (1–2 days); 3.5 = usually (3–4 days); 6 = almost (6–7 days).	1.23	1.27	1.19	1.18	1.28

Table 1. Cont.

Variable Name	Description	All Households	PA Households	AD Households	NAD Households	NA Households
Life satisfaction	The respondent's overall satisfaction with his/her current life: 1 = very dissatisfied; 2 = somewhat dissatisfied; 3 = neutral; 4 more satisfied; 5 = very satisfied.	3.82	3.58	3.79	3.81	3.83

### (3) Measurement of well-being inequality

We selected several functionings to measure rural household well-being. Since the value of primary indicators of these functionings is mainly obtained by subjective evaluation using Likert scaling, the value of functionings is limited. This study referred to other research measuring the inequality of the subjective well-being [24,25] and used the coefficient of variation<sup>1</sup> (CV) to calculate the inequality.

### 3.3. Methodology

#### (1) The evaluation method of rural households' comprehensive well-being

This study uses the fuzzy set theory method to evaluate the comprehensive well-being level of rural households.

In effect, there are a large number of economic problems with imprecision, vagueness, and uncertainties, which cannot be described and measured by classical mathematics. Zadeh, L.A. (1978) first proposed fuzzy set theory with a strict mathematical framework [26], and it has been widely applied in evaluating poverty [27–29], human well-being [20,30,31], justice perception [32], value and culture [33], project risk [34,35], employee performance evaluation [36], and other research fields.

Well-being has always been regarded as an objective but fuzzy concept. Amartya Sen proposed that well-being is “a broad and partly opaque concept” [37]. Sen's capability theory has become equivalent to human welfare/well-being conceptualization and has been praised by many scholars. In the method of operationalization, fuzzy set theory has been widely used to measure functionings [30,38–40]. Therefore, this study attempts to use the fuzzy method to evaluate the well-being of rural households comprehensively.

① The setting of the fuzzy set well-being function. The fuzzy set representing the farmers' overall well-being status is  $X$  with subset  $W$ .  $W$  representing the well-being content of rural households concerned in this study. The well-being function of one household can be expressed as  $W = \{x, \mu_A(x)\}$ , where  $x \in X$ ;  $\mu_W(x)$  is the membership degree of  $x$  to  $W$  ( $\mu_W(x) \in [0, 1]$ ). The higher the value of  $\mu_W(x)$  suggests the better the well-being status. A membership degree of 1 means that the well-being status is absolutely good; a membership degree of 0 means that the well-being status is absolutely poor; a membership of 0.5 means that the well-being status is the fuzziest. Martinetti, E.C. (2000) sets the membership degree of 0.4 to 0.7 as the medium well-being level [39]. In the following analysis, according to the membership degree, this study divides the well-being status of rural households into three categories: low (lower than 0.4), medium (between 0.4 and 0.7), and high (higher than 0.7).

② The setting of the membership function. According to the type of variables (dummy variables, continuous variables, and ordinal categorical variables), we set the membership function into three types.

With functioning subset  $A_1, A_2, \dots, A_m \in A$ , the membership degree of each functioning subset is obtained by summing the membership degrees of the corresponding primary indicators. If  $x_{ij}$  is the value of the  $j$  primary index of the  $I$  household, the  $j$  primary index is



$x_j = \{x_1, x_2, \dots, x_j, \dots\}$ . When the primary indicator is a dummy variable, the value range of the variable is only 0 and 1, and the membership function is:

$$\mu(x_{ij}) = \begin{cases} 1 & x_{ij} = 1 \\ 0 & x_{ij} = 0 \end{cases} \quad (1)$$

If the primary indicator is continuous variables or ordinal categorical variables, the membership function is:

$$\mu(x_{ij}) = \begin{cases} 0 & 0 \leq x_{ij} \leq x_{ij}^{\min} \\ \frac{x_{ij} - x_{ij}^{\min}}{x_{ij}^{\max} - x_{ij}^{\min}} & x_{ij}^{\min} < x_{ij} < x_{ij}^{\max} \\ 1 & x_{ij} \geq x_{ij}^{\max} \end{cases} \quad (2)$$

$$\mu(x_{ij}) = \begin{cases} 0 & 0 \leq x_{ij} \leq x_{ij}^{\min} \\ \frac{x_{ij}^{\max} - x_{ij}}{x_{ij}^{\max} - x_{ij}^{\min}} & x_{ij}^{\min} < x_{ij} < x_{ij}^{\max} \\ 1 & x_{ij} \geq x_{ij}^{\max} \end{cases} \quad (3)$$

where,  $x_{ij}^{\max}$  and  $x_{ij}^{\min}$ , respectively, represent the maximum and minimum values of the indicator. Equation (2) applies to the calculation of membership degree when  $x_j$  is positively correlated with rural household well-being status. When  $x_j$  is negatively correlated with rural household well-being status, the membership calculation is applicable to Equation (3).

③ Weight setting and index aggregation. Before calculating the membership degree of comprehensive indicators, each primary indicator must be weighted. Decancq and Lugo (2013) summarized the weight calculation methods of multi-dimensional indicators into three types [41]: data-driven weighting, normal weighting, and hybrid weighting. In the study of fuzzy evaluation, some scholars once took the logarithm of the reciprocal of an index as the weight of this index [27,42], which makes the index with a lower membership degree get greater weight, and lets readers pay more attention to the index with lower well-being status. This study also uses this method to calculate the weight of each primary indicator  $w_j$ :

$$w_j = \ln\left[\frac{1}{\mu(x_{ij})}\right] \quad (4)$$

Then, the membership degree of each functioning can be obtained by weighted average. The weight calculation and index aggregation formula are as follows:

$$\mu(x_j) = \frac{\sum \mu(x_{ij}) \cdot w_j}{\sum w_j} \quad (5)$$

According to the same calculation formula, the membership degree of each functioning in Equation (5) can be summed up to obtain the membership degree of comprehensive well-being  $W$  of the rural household.

## (2) Selection of conversion factors

Amartya Sen puts forward that the capital owned by people needs to be transformed into functions through "conversion factors". The process of farmers transforming available capital into well-being utility depends on their household characteristics. This study tries to calculate five kinds of livelihood capital to represent all individual characteristics of each rural household.

In particular, we designed the livelihood capital index system for this study. It should be noted that, due to the lack of information on households' contracted farmland area in CFPS 2016 and 2018 data, we matched the information on contracted farmland in CFPS 2012 with the family ID code.

In terms of weight calculation, this study uses the comprehensive weighting method to obtain the weight of each capital index. First, we designed a network questionnaire according to the index structure and invited five scholars from the Renmin University of China and the City University of Hong Kong who have studied China’s rural land tenure system and land market, three government officials engaged in rural land use management, and three grassroots village cadres to complete our questionnaire. Accordingly, we obtained the average expert scoring results and calculated the weight of each primary index of livelihood capital by analytic hierarchy process. Then, we averaged the weight values obtained by the two methods as the final weight result of the livelihood capital index using the entropy method to get another objective weight value. Finally, five types of livelihood capital indexes are calculated by multiplying the Z-standardized value of each primary livelihood capital index data and its corresponding weight. Various indicators and weight calculation results are selected in Appendix Table A1.

(3) Estimation strategy of the impact of farmland transfer participation on rural household well-being status

Taking the comprehensive well-being index  $W$  of farmers and the membership degrees of four functionings: physical conditions, work conditions, psychological status, and life satisfaction as dependent variables, we adopt OLS regression to estimate the impact of farmland transfer participation and other independent variables on household well-being. The empirical test equation is as follows:

$$W_{ij} = \alpha_{0,ij} + \beta_1 Transfer_{out,ij} + \beta_2 Transfer_{in,ij} + \beta_3 Diversity_{ij} + \beta_4 N_{ij} + \beta_5 H_{ij} + \beta_6 P_{ij} + \beta_7 F_{ij} + \beta_8 S_{ij} + \beta_9 GDP_{it} + \beta_{10} year_{ij} + \varepsilon_{ij} \tag{6}$$

where  $W_{ij}$  is the well-being level of  $j$  household in the  $i$  province;  $Transfer_{out}$  and  $Transfer_{in}$  are the decision variables of household farmland transfer participation;  $Diversity$  is the proportion of non-agricultural household income in the total income, which reflects the diversification level of household livelihood strategy.  $N, H, P, F,$  and  $S$  are the variables of natural, human, physical, financial, and social capital with standardized values, which are selected to control household characteristics;  $GDP_{it}$  is the per capita GDP in the  $t$  year of  $i$  province, which is used to control the provincial difference;  $Year_{ij}$  is the year control variable;  $\beta_1 \sim \beta_{10}$  is the coefficient to be estimated for each variable;  $\alpha_0$  is the constant-coefficient to be estimated; and  $\varepsilon$  is the error term.

(4) Estimation strategy of the impact of farmland transfer participation on rural household well-being inequality

To observe the differential impact of participation in farmland transfer on rural households with different livelihoods, we identify four kinds of rural households (e.g., pure-agricultural households, agricultural-dependent households (AD), non-agricultural-dependent households (NAD), and non-agricultural households (NA) according to their proportion of agricultural income in total household income (Table 2).

**Table 2.** Classification standard of household group.

Livelihood Strategy Types	The Proportion of Agricultural Income
Pure-agricultural households (PA)	Proportion $\geq 90\%$
Agricultural-dependent households (AD)	$90\% > \text{proportion} \geq 50\%$
Non-agricultural-dependent households (NAD)	$50\% > \text{proportion} \geq 10\%$
Non-agricultural households (NA)	proportion $< 10\%$

Because the value range of the evaluation index of household well-being is limited, the method of decomposing the inequality index by regression equation is not applicable. This study referred to studies of Kollamparambil and Mathentamo [25], Binde and Coad [43], and used the quantile regression method to analyze the impact of farmland transfer participation on household well-being inequality.

## 4. Results and Discussion

### 4.1. Descriptive Summary

(1) Farmland transfer participation rate of sample households

According to the descriptive results, 26.99% of the total households participate in farmland transfer activities with an FTO rate of 14.17% and an FTI rate of 12.82%. The results also show that the FTO rate of NA households (20.96%) is much higher than that of the other three livelihood types of households. The FTI rate of AD households is the highest (23.97%) among the sample. Our sample with different livelihood strategies is shown in Table 3.

**Table 3.** Statistics on the participation in farmland transfer among rural households with different livelihood strategies.

Livelihood Strategy Type	Household Number	Number of FTO Households	FTO Rate	Number of FTI Households	FTI Rate
Pure-agricultural households (PA)	105	10	9.52%	18	17.14%
Agricultural-dependent households (AD)	1285	86	6.69%	308	23.97%
Non-agricultural-dependent households (NAD)	5563	451	8.11%	1027	18.46%
Non-agricultural households (NA)	6438	1350	20.97%	364	5.65%
Total	13,391	1897	14.17%	1717	12.82%

(2) Group differences in membership degree of functionings

According to the fuzzy comprehensive evaluation principle, this study calculated the membership degree of each functioning and its primary index. All calculation results are shown in Table 4. The results show that the membership score of life satisfaction is 0.704, indicating that all households are highly satisfied with their life. The membership scores of the other three functionings are greater than 0.5, in the middle range.

**Table 4.** Results of fuzzy evaluation of the well-being status of rural households.

Functionings	Weight	All Sample Households	PA Households	AD Households	NAD Households	NA Households
Health conditions	1.332	0.508	0.441	0.502	0.509	0.511
Health assessment	0.234	0.791	0.741	0.778	0.796	0.790
Health change	0.955	0.385	0.305	0.380	0.385	0.390
Hospitalization	0.143	0.867	0.860	0.870	0.870	0.870
Work conditions	0.637	0.593	0.593	0.635	0.635	0.638
Work satisfaction	0.637	0.593	0.593	0.635	0.635	0.638
Psychological status	1.210	0.699	0.643	0.698	0.704	0.697
Faith in life	0.288	0.750	0.690	0.745	0.750	0.750
Sleep	0.242	0.785	0.739	0.789	0.808	0.764
Feel pleasure	0.531	0.588	0.521	0.582	0.580	0.597
Feel lonely	0.148	0.863	0.830	0.875	0.886	0.840
Life satisfaction	0.350	0.704	0.645	0.698	0.703	0.708
Overall well-being index	3.529	0.608	0.558	0.613	0.617	0.617

Overall, the membership score of PA households in the four functionings of physical conditions, work conditions, psychological status, and life satisfaction is significantly lower than that of households with other livelihood strategies. In addition to the highest

membership score of the psychological status of NAD households, the scores of the other three functionings show a trend that the higher the non-agricultural degree is, the higher the membership score is. According to the comprehensive fuzzy index of household well-being, the overall membership score of NA and NAD households is 0.617, and the score of AD households is slightly lower at 0.613, significantly higher than that of PA farmers with 0.558.

### (3) Characteristics of well-being inequality among rural households

The CV results of each functioning membership degree from the overall sample are shown in Table 5. The CV of the comprehensive fuzzy index is 21.98%, indicating that the dispersion degree of well-being level among all sample households is not large. According to the CV analysis, among the four functionings, the most unequal distribution of the membership degree is the physical conditions with the CV of 42.44%, followed by the working conditions and life satisfaction, and the CV of the membership degree of psychological status is the lowest.

**Table 5.** Results of the coefficient of variation of each functioning.

	Health Conditions	Work Conditions	Psychological Status	Life Satisfaction	Overall Well-Being Index
All households	42.436%	34.138%	27.335%	31.430%	21.980%
PA households	42.751%	28.996%	25.838%	32.751%	20.530%
AD households	41.093%	34.379%	27.103%	31.291%	22.524%
NAD households	40.136%	34.245%	26.294%	30.504%	21.746%
NA households	44.608%	34.052%	28.281%	32.220%	22.054%
Intragroup gap	0.091	0.028	0.04	0.029	0.025
Intergroup gap	<0.001	<0.001	<0.001	<0.001	<0.001

The results also show little difference in the variation coefficient of the membership degree of the same functioning among our sample, indicating that the well-being gap between different livelihood strategy groups is not obvious. We used the Theil index to calculate the intragroup gap and intergroup gap of the membership degree of each functioning. The results suggest the inequality of membership degree of each functioning mainly comes from the intragroup gap instead of the inter-group gap, indicating no significant difference in the well-being status among households in different livelihood strategy groups.

#### 4.2. The Impact of Farmland Transfer Participation on the Well-Being of Rural Households

The results of the OLS estimation with the composite well-being index as the dependent variable are shown in Table 6. On average, there is no significant effect of farmland transfer on the well-being of all households and household groups with different livelihood strategies, which is close to the results estimated by You et al. [44]; that is, farmland transferred-out (FTO) does not increase the well-being of rural households other than income.

The value of the estimated coefficients shows that the negative effect of transferring farmland on the level of well-being of all households is not significant. In addition, after differentiating the livelihood strategies of households, the inhibitory effect of farmland transaction on the well-being of farmland transferred-in (FTI) is insignificant, indicating that there is no group-differentiated effect of FTI on the well-being of households with different livelihood strategies.

From the estimation results of other independent variables, the effect of natural capital on the well-being of all households shows a significant inhibitory effect, while human, physical, and financial capital significantly contributes to the well-being of all farm households.

**Table 6.** Estimated results of the impact of farmland transfer participation on the well-being of rural households.

Variable Name	All Households	PA Households	AD Households	NAD Households	NA Households
FTO	0.003 (0.005)	−0.022 (0.041)	0.018 (0.014)	−0.005 (0.009)	0.004 (0.006)
FTI	−0.008 ** (0.004)	−0.003 (0.041)	−0.009 (0.010)	−0.006 (0.005)	−0.014 (0.009)
Diversity	0.001 (0.008)	0.033 (0.392)	0.017 (0.058)	−0.031 (0.019)	0.058 (0.071)
NC	−0.021 ** (0.008)	−0.139 ** (0.069)	−0.026 (0.026)	−0.0218 * (0.012)	−0.017 (0.013)
HC	0.511 *** (0.022)	0.366 ** (0.151)	0.565 *** (0.07)	0.535 *** (0.03)	0.492 *** (0.034)
PC	0.042 ** (0.019)	0.164 (0.119)	0.166 ** (0.078)	0.0183 (0.030)	0.037 (0.024)
FC	0.078 *** (0.023)	0.488 (0.968)	0.221 *** (0.074)	0.090 ** (0.039)	0.059 ** (0.030)
SC	−0.025 * (0.014)	−0.195 (0.147)	−0.038 (0.049)	−0.021 (0.021)	−0.022 (0.022)
GDP	−0.008 (0.007)	−0.067 (0.052)	−0.030 (0.028)	0.011 (0.0129)	−0.0192 ** (0.010)
Year	0.012 *** (0.003)	0.044 * (0.026)	−0.002 (0.012)	0.005 (0.005)	0.020 *** (0.005)
Constant	0.539 *** (0.008)	0.554 *** (0.034)	0.528 *** (0.032)	0.554 *** (0.015)	0.487 *** (0.069)
F-value	68.9 ***	2.74 ***	9.84 ***	33.9 ***	28.79 ***
Observations	4,756	93	437	2,101	2,191
R <sup>2</sup>	0.148	0.199	0.182	0.157	0.141

Note: (i) The standard errors are given in parenthesis. (ii) \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ . (iii) The relatively low R-squared may be related to the differences in motivation for farmers' farmland transfer decisions combined with the other variables of health, income, etc., which were not estimated in the model. However, we believe the explanatory variable explains substantial part of the sample variation in the dependent variables.

This paper further estimates the OLS results of the impact of farmland transfer participation on rural household functionings (see Appendix Tables A2–A5). According to the results, the participation variables of farmland transfer have no significant impact on rural households' physical and psychological status. On average, the FTI variable has a significant negative effect on the working status of all sampled households. The possible reason is that participating in FTI encourages households to engage in the strategy of agricultural livelihood, reducing the possibility of households engaging in diversified occupations, which further reduces their job satisfaction. Regarding household livelihood strategies, participating in FTI has a significant negative impact on working conditions except for PA households. The reason why there is no significant impact on the working status of PA households may be that there are few samples of PA households who choose to transfer their agricultural land to others (only 5.65%).

This study takes life satisfaction as the proxy index. Life satisfaction is a comprehensive index reflecting the subjective well-being of people, which will be affected by multiple factors, such as wealth, health conditions, labor conditions, and so on. The regression results show that, on average, participating in FTO has a significant positive impact on the improvement of life satisfaction for all samples, while participating in FTI land has a significant negative impact on the improvement of life satisfaction. One possible reason may be that acquiring additional farmland increases the workload of agricultural activities and brings further financial burdens for rural households.

In terms of the households with different livelihood strategies, participating in FTO only has a significant positive impact on improving NA households' life satisfaction. Participating in FTI has a significant negative impact on the life satisfaction of AD and

NAD households. Households are more likely to participate in non-agricultural livelihoods after transferring their farmland to others. They are also more likely to engage in work related to agricultural activities after buying farmland from others. The different effects of different farmland transfer choices on households' life satisfaction actually reflect the different effects of household occupational differentiation on their subjective well-being.

As for other variables, the increase in the level of livelihood diversification has a significant positive effect on the physical status of NA households. The possible reason for this is that the higher the level of livelihood diversification of households, the more likely family members are to engage in non-manual labor with high-income returns. Some studies have shown that manual workers have lower self-rated health conditions than occupational workers engaged in non-manual work [45]. In addition, elevated levels of livelihood diversification have a significant positive effect on the quality of life of NA households.

Regarding the livelihood capital variables, human capital has a significant positive effect on household physical conditions. The possible reason for this is that the higher the households' human capital, the more likely they are to engage in non-manual labor and reduce the burden on their physical health. For working conditions, psychological conditions, and life satisfaction, the estimation results of livelihood capital variables are more consistent, and the enhancement of these three types of capital has a significant positive effect on the well-being of the three functioning. In addition, the estimation results show that natural capital has a significant negative effect on physical conditions and the life satisfaction of households, which explains the main reason why natural capital reduces household well-being levels.

#### 4.3. The Impact of Farmland Transfer Participation on the Well-Being Gap among Rural Households

The estimated results from the OLS quantile regression with 0.1, 0.25, 0.50, 0.75, and 0.9 as the dependent variable quantile are shown in Table 7. From the estimated results, there is no significant effect of FTO on the level of household well-being at each quantile, which is consistent with the mean OLS regression results in Table 6. Participating in FTI has a significant negative effect on household well-being only at the highest (0.9) quantile. The estimated coefficients of the independent variables in Figure 4 show that the farmland transfer variables do not change significantly across all quartiles, with no significant upward or downward trend, which indicates that farmland transfer participation has no significant effect on the well-being gap among rural households.

**Table 7.** Quantile regression estimation results of the impact of farmland transfer participation on rural household well-being status.

Variable Name	(1) Q10	(2) Q25	(3) Q50	(4) Q75	(5) Q90
FTO	−0.001 (0.010)	0.005 (0.008)	0.009 (0.007)	0.004 (0.005)	0.007 (0.005)
FTI	−0.009 (0.009)	−0.006 (0.005)	−0.005 (0.006)	−0.007 (0.006)	−0.011 * (0.007)
Diversity	−0.022 (0.018)	−0.001 (0.010)	0.010 (0.010)	0.003 (0.011)	0.003 (0.016)
NC	−0.012 (0.015)	−0.014 (0.011)	−0.020 ** (0.010)	−0.032 ** (0.013)	−0.027 ** (0.013)
HC	0.546 *** (0.033)	0.581 *** (0.044)	0.523 *** (0.033)	0.433 *** (0.027)	0.369 *** (0.034)
PC	0.117 *** (0.026)	0.005 ** (0.025)	0.0344 ** (0.017)	0.011 (0.023)	0.022 (0.024)
FC	0.062 (0.051)	0.088 ** (0.038)	0.092 *** (0.023)	0.075 *** (0.020)	0.027 (0.023)

Table 7. Cont.

Variable Name	(1) Q10	(2) Q25	(3) Q50	(4) Q75	(5) Q90
SC	−0.013 (0.031)	−0.045 ** (0.022)	−0.028 (0.019)	−0.014 (0.014)	−0.034 (0.022)
GDP	−0.029 ** (0.012)	−0.006 (0.011)	0.002 (0.00929)	0.001 (0.008)	−0.010 (0.014)
Year	0.002 (0.007)	0.007 * (0.004)	0.013 *** (0.004)	0.015 *** (0.0031)	0.021 *** (0.004)
Constant	0.415 *** (0.019)	0.463 *** (0.014)	0.531 *** (0.011)	0.620 *** (0.010)	0.695 *** (0.015)
Pseudo R <sup>2</sup>	0.095	0.093	0.080	0.067	0.050
Observations	4756	4756	4756	4756	4756

Note: (i) The standard errors are given in parenthesis. (ii) \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

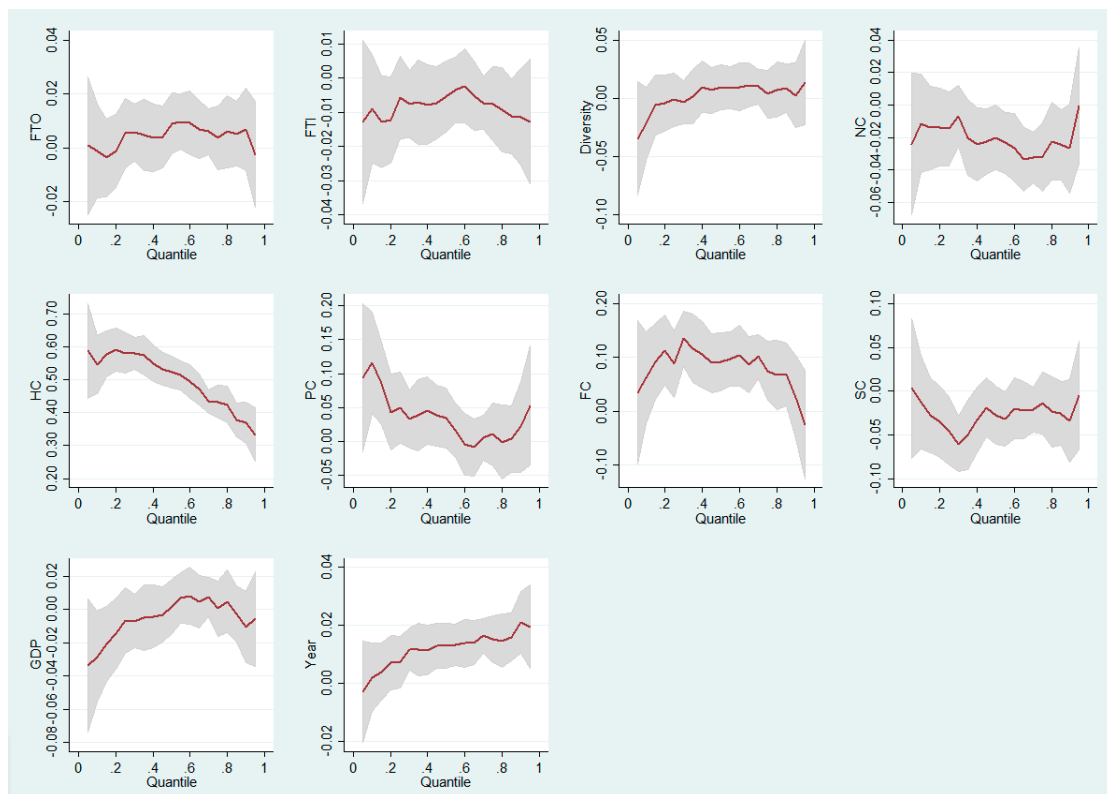


Figure 4. Trend of estimated coefficients of each independent variable with the change of quantile.

Among the other independent variables, only human capital has a significant effect on the dependent variable at each quantile, and there is a significant trend with the change in quantile. As shown in Figure 4, the overall decreasing trend in the degree of impact of human capital on well-being indicates that the enhancing effect of human capital on households with low well-being status is greater than that of households with high well-being status, and the enhancement of human capital has a facilitating effect on reducing the well-being gap among rural households.

### 5. Conclusions, Implications, and Prospects

In recent years, under the impetus of the Three Rights Separation reform and land titling policies in rural China, the structured upgrading of the farmland transfer market has been effectively promoted. The farmland transfer market has further played its role in adapting to productivity changes, adjusting human-land relations, and revitalizing

multifactor flow in rural development. In this study, based on the capability approach, we construct a multi-dimensional well-being assessment framework and employ the fuzzy method to evaluate the well-being performance of rural households. Using the national survey data in rural China, this study empirically examined the effects of farmland transfer participation on the well-being level of rural households.

The regression results found that, on average, participating in FTO has no significant effect on the overall rural household well-being, and FTI participation has a significant negative effect on rural household well-being. Further estimation reveals that participating in FTO has a little significant positive effect on farmers' improvement of life satisfaction while participating in FTI has a significant negative effect on household work conditions and life satisfaction. We also found that the results differed in rural households with different livelihood strategy groups. Additionally, the quantile regression results found that the differential impacts of farmland transfer participation have no significant effect on the well-being gap among farm households. Among the other conversing factors, the results suggest that human, physical, and financial capital significantly contributes to rural household well-being performance. The quantile regression results indicate that human capital enhancement can theoretically reduce the well-being gap among rural households.

Given the findings, this paper yields several meaningful policy implications. First, policymakers should pay attention to the positive impact of farmland transfer activity on farmers' well-being level and income. Farmland transfer participation brings considerable subjective well-being effects to farmers. Therefore, it should be continued to promote farmland transfer in a localized manner and enhance the government's coordinating role in guiding farmland transfer activities. Second, the heterogeneity of farmers' livelihood capital is the crucial factor leading to the differentiation of farmers' well-being. In particular, the quantile regression results indicate that human capital brings more benefits to low well-being farmers. Therefore, policies and measures should be taken to improve farmers' acquired capital level, such as human capital that would improve farmers' well-being level and potentially reduce the well-being gap among rural households verified in this paper.

There are still particular limitations in our research. This paper employed the capability approach and picked many subjective indicators to comprehensively assess the well-being effect. Additionally, it was found that participating in FTO had no significant impact on the overall well-being of rural households while participating in FTI had a significant negative impact on the well-being of rural households. However, numerous studies have demonstrated that farmland transfer can increase farmers' income, and it is also believed that higher earnings will improve farmers' subjective well-being. Therefore, future research would benefit from incorporating income as an important factor affecting subjective well-being is expected to reveal a fuller picture. Moreover, we found that FTI has a negative impact on farmers' well-being because it reduces their subjective evaluation of work conditions. With the increasing scale of farmland transfer in China, there will be more and more professional farmers. Increasing the subjective well-being of farmers who engaged in FTI is also worth further investigation.

**Author Contributions:** Conceptualization, W.H. and Y.F.; methodology, W.H.; investigation, W.H., Y.F. and W.S.; data curation, W.H. and W.S.; writing—original draft preparation, W.H.; writing—review and editing, Y.F. and W.S.; funding acquisition, Y.F. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by the Humanities and Social Sciences Foundation of MOE (Ministry of Education in China) (Grant No.: 21YJC630023); the 2022 Philosophy and Social Sciences Planning Project of Shenzhen (SZ2022B023), the Basic and Applied Basic Research Foundation of Guangdong (Grant No.: 2023A1515012414); this paper is supported by Shenzhen Humanities & Social Sciences Key Research Bases.

**Data Availability Statement:** The CHFS database is freely accessible to registered users at. <https://chfs.swufe.edu.cn/researchcenter/intro.html> (accessed on 2 April 2022).

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



## Appendix A

Table A1. Measurement indicator system and the weight of rural household livelihood capital.

Livelihood Capital Type	Variable Name	Description	Obs.	Mean	Weight	Direction
Natural capital	N1 Farmland area	Per capita contracted farmland area of households(mu)	12,427	2.839	0.663	+
	N2 Water	Water source: well water, river or mountain spring Water = 1, Tap water = 0	13,525	0.369	0.337	+
Human capital	H1 Labor force	Number of family members engaging in labor activates	13,525	2.544	0.406	+
	H2 Age	The average age of family members interviewed (year)	13,134	47.720	0.190	–
	H3 Education	Average education years of family members interviewed (year)	10,944	6.106	0.193	+
	H4 Health	Average health status of family members interviewed: Quite healthy = 5; Very healthy = 4; Relatively healthy = 3; Kind of unhealthy= 2; Unhealthy = 1	13,133	2.912	0.211	+
Physical capital	P1 Housing	Household housing value (ten thousand yuan)	13,416	17.307	0.308	+
	P2 Durable good	Total value of household durable goods (automobiles, electrical appliances, jewellery, antiques, etc.) (yuan)	13,298	23,436.560	0.145	+
	P3 Agricultural machinery	Total value of household agricultural machinery (harvesters, tractors, water pumps, etc.) (yuan)	13,488	2753.553	0.165	+
	P4 Other properties' value	Value of other properties except housing (ten thousand yuan)	13,521	4.112	0.183	+
	P5 Household business asset	Unit: ten thousand yuan	13,468	0.661	0.200	+
Financial capital	F1 Household fixed deposit	Unit: yuan	11,310	11,420.300	0.272	+
	F2 Financial products	Whether households hold financial products (i.e., stocks, bonds, funds, etc.). Yes = 1, No = 0	13,521	0.010	0.152	+
	F3 Debt	Others' debt owed to the household (yuan)	13,515	4269.155	0.124	+
	F4 Loan_1	Total housing loans (yuan)	13,479	6680.190	0.110	–
	F5 Loan_2	Total bank loans, except for housing loans (yuan)	13,486	9681.499	0.140	–
	F6 Pension	Amount of pension received by retired family members (yuan/year)	13,460	2127.239	0.108	+
	F7 Subsidy	Amount of subsidies issued by the government (including subsistence allowances, agricultural subsidies, pensions for workers at work, etc) (yuan/year)	13,382	897.845	0.095	+

Table A1. Cont.

Livelihood Capital Type	Variable Name	Description	Obs.	Mean	Weight	Direction
Social capital	S1 Contact expenses	Transportation and communication expenses (yuan/year)	13,477	1043.393	0.325	+
	S2 Party	Is anyone in the family a party member? Yes = 1, No = 0	13,525	0.100	0.248	+
	S3 Religious	Is anyone in the family a religious member? Yes = 1, No = 0	13,525	0.030	0.149	+
	S4 Union	Is anyone in the family a union member? Yes = 1, No = 0	13,525	0.028	0.146	+
	S5 Association	Is anyone in the family a member of a workers' association? Yes = 1, No = 0	13,525	0.041	0.132	+

Table A2. Estimated results of the impact of farmland transfer participation on health conditions of rural households.

Variable Name	All Households	PA Households	AD Households	NAD Households	NA Households
FTO	−0.00359 (0.00677)	0.0376 (0.0732)	0.0128 (0.0294)	−0.0153 (0.0118)	−0.00335 (0.00867)
FTI	−0.00802 (0.00596)	0.104 (0.0696)	0.00385 (0.0144)	−0.00610 (0.00755)	−0.0114 (0.0131)
Diversity	0.0316 *** (0.0117)	0.00142 (0.530)	−0.0314 (0.0870)	−0.0122 (0.0274)	0.458 *** (0.105)
NC	−0.0242 ** (0.0119)	−0.248 ** (0.105)	−0.0505 (0.0356)	−0.0239 (0.0169)	−0.0123 (0.0189)
HC	0.805 *** (0.0323)	0.909 *** (0.229)	0.989 *** (0.105)	0.831 *** (0.0470)	0.783 *** (0.0493)
PC	−0.0388 (0.0274)	0.176 (0.299)	0.0189 (0.112)	−0.0697 (0.0439)	−0.0612 * (0.0359)
FC	0.0177 (0.0317)	−0.301 (1.063)	0.157 (0.0965)	−0.0107 (0.0521)	0.0246 (0.0420)
SC	−0.112 *** (0.0208)	−0.417 * (0.214)	−0.0418 (0.0702)	−0.132 *** (0.0304)	−0.103 *** (0.0307)
GDP	−0.0119 (0.0108)	−0.180 ** (0.0805)	−0.0242 (0.0364)	−0.00401 (0.0174)	−0.0264 * (0.0147)
Year	0.00363 (0.00474)	0.0607 (0.0517)	−0.0112 (0.0160)	−0.00796 (0.00672)	0.0155 ** (0.00727)
Constant	0.408 *** (0.0117)	0.406 *** (0.0487)	0.400 *** (0.0471)	0.440 *** (0.0223)	−0.00530 (0.103)
F-value	71.188 ***	4.88 ***	11.328 ***	34.718 ***	30.288 ***
Observations	4914	98	444	2136	2306
R2	0.148	0.296	0.212	0.166	0.133

Note: (i) The standard errors are given in parenthesis. (ii) \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

Table A3. Estimated results of the impact of farmland transfer participation on psychological status of rural households.

Variable Name	All Households	PA Households	AD Households	NAD Households	NA Households
FTO	0.00268 (0.00703)	−0.0810 (0.0616)	0.0455 (0.0275)	−0.00271 (0.0129)	0.00258 (0.00890)
FTI	−0.000503 (0.00632)	−0.00218 (0.0518)	0.0118 (0.0158)	−0.000787 (0.00829)	−0.0205 (0.0130)

Table A3. Cont.

Variable Name	All Households	PA Households	AD Households	NAD Households	NA Households
Diversity	−0.00985 (0.0119)	0.0328 (0.550)	0.0210 (0.0800)	−0.0449 (0.0290)	−0.266 (0.106)
NC	−0.0277 (0.0123)	−0.0790 (0.0948)	−0.0200 (0.0388)	−0.0184 (0.0175)	−0.0385 (0.0193)
HC	0.477 *** (0.0320)	0.293 (0.215)	0.430 *** (0.114)	0.510 *** (0.0460)	0.451 *** (0.0488)
PC	0.109 *** (0.0253)	0.117 (0.242)	0.359 *** (0.104)	0.0567 (0.0434)	0.124 *** (0.0329)
FC	0.101 *** (0.0333)	0.273 (1.395)	0.318 *** (0.109)	0.115 ** (0.0571)	0.0711 (0.0435)
SC	−0.000197 (0.0205)	0.0902 (0.200)	−0.0779 (0.0705)	0.0305 (0.0293)	−0.0114 (0.0310)
GDP	0.0145 (0.0104)	0.0106 (0.0759)	−0.00980 (0.0398)	0.0549 *** (0.0190)	−0.000860 (0.0135)
Year	−0.0153 *** (0.00467)	−0.0160 (0.0455)	−0.0380 ** (0.0164)	−0.0171 ** (0.00684)	−0.0107 (0.00695)
Constant	0.639 *** (0.0119)	0.627 *** (0.0395)	0.634 *** (0.0443)	0.645 *** (0.0234)	0.903 *** (0.104)
F-value	29.948 ***	0.76	5.818 ***	16.278 ***	13.028 ***
Observations	4905	98	444	2133	2300
R <sup>2</sup>	0.066	0.077	0.100	0.075	0.066

Note: (i) The standard errors are given in parenthesis. (ii) \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

Table A4. Estimated results of the impact of farmland transfer participation on working conditions of rural households.

Variable Name	All Households	PA Households	AD Households	NAD Households	NA Households
FTO	0.00232 (0.00800)	−0.0299 (0.0931)	−0.00525 (0.0428)	−0.000381 (0.0144)	0.00413 (0.0101)
FTI	−0.0221 *** (0.00708)	−0.125 ** (0.0500)	−0.0622 *** (0.0194)	−0.0192 ** (0.00946)	0.00202 (0.0133)
Diversity	−0.00868 (0.0136)	0.581 (0.644)	0.107 (0.0919)	−0.0278 (0.0329)	0.167 (0.125)
NC	0.0129 (0.0141)	−0.0607 (0.0950)	−0.00720 (0.0465)	0.00735 (0.0208)	0.0198 (0.0212)
HC	0.141 *** (0.0355)	−0.132 (0.227)	0.0499 (0.123)	0.103 * (0.0560)	0.214 *** (0.0509)
PC	0.0776 *** (0.0296)	−0.108 (0.230)	0.0496 (0.139)	0.0562 (0.0563)	0.0837 ** (0.0366)
FC	0.0889 *** (0.0332)	2.857 * (1.566)	0.187 (0.155)	0.184 *** (0.0584)	0.0322 (0.0413)
SC	0.0583 ** (0.0237)	0.126 (0.252)	−0.0199 (0.0832)	0.0660 * (0.0362)	0.0634 * (0.0339)
GDP	−0.0230 ** (0.0108)	−0.00435 (0.0743)	−0.0576 (0.0389)	−0.0229 (0.0189)	−0.0197 (0.0143)
Year	0.0426 *** (0.00561)	0.0589 (0.0433)	0.0365 * (0.0218)	0.0353 *** (0.00859)	0.0503 *** (0.00792)
Constant	0.560 *** (0.0136)	0.618 *** (0.0405)	0.573 *** (0.0519)	0.582 *** (0.0267)	0.366 *** (0.122)
F-value	17.73	2.79	2.19 **	6.66	10.71
Observations	4757	93	437	2101	2192
R <sup>2</sup>	0.034	0.190	0.048	0.028	0.044

Note: (i) The standard errors are given in parenthesis. (ii) \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

**Table A5.** Estimated results of the impact of farmland transfer participation on life quality of rural households.

Variable Name	All Households	PA Households	AD Households	NAD Households	NA Households
FTO	0.0153 ** (0.00776)	−0.0627 (0.0812)	−0.0163 (0.0345)	0.0137 (0.0144)	0.0209 ** (0.00984)
FTI	−0.0139 * (0.00707)	−0.104 (0.0738)	−0.0348 * (0.0182)	−0.0164 * (0.00921)	−0.00800 (0.0142)
Diversity	0.0373 *** (0.0144)	0.649 (0.676)	0.0850 (0.0984)	−0.0431 (0.0335)	0.421 *** (0.130)
NC	−0.0479 *** (0.0144)	−0.171 (0.137)	−0.000764 (0.0455)	−0.0668 *** (0.0216)	−0.0456 ** (0.0217)
HC	0.203 *** (0.0363)	−0.428 (0.324)	0.253 * (0.129)	0.233 *** (0.0551)	0.160 *** (0.0537)
PC	0.119 *** (0.0296)	0.472 (0.340)	0.235 * (0.133)	0.157 *** (0.0512)	0.127 *** (0.0382)
FC	0.166 *** (0.0360)	0.965 (1.438)	0.212 (0.166)	0.199 *** (0.0588)	0.140 *** (0.0468)
SC	0.0103 (0.0241)	−0.102 (0.272)	−0.0177 (0.0857)	0.0529 (0.0366)	−0.0179 (0.0350)
GDP	−0.0383 *** (0.0123)	0.0521 (0.0974)	−0.0422 (0.0479)	−0.0213 (0.0229)	−0.0371 ** (0.0159)
Year	0.0871 *** (0.00555)	0.0304 (0.0636)	0.0943 *** (0.0190)	0.0809 *** (0.00822)	0.0913 *** (0.00827)
Constant	0.640 *** (0.0142)	0.709 *** (0.0507)	0.578 *** (0.0531)	0.630 *** (0.0268)	1.025 *** (0.127)
F-value	49.12 ***	1.82 *	6.04 ***	24.18 ***	22.6 ***
Observations	4906	98	444	2133	2301
R <sup>2</sup>	0.089	0.111	0.110	0.098	0.089

Note: (i) The standard errors are given in parenthesis. (ii) \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

## Note

- <sup>1</sup> The coefficient of variation is also known as the relative standard deviation (RSD), which is the ratio of the standard deviation to the sample mean.

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