Available online at www.ijournalse.org

**Emerging Science Journal**

(ISSN: 2610-9182)

Vol. 9, No. 4, August, 2025

# The Impact of Land Transfer on Farmers' Happiness: The Mediating Effect of Social Aspects

Weiwei Zhang [1, 2*], Qiuxiang Zhou [3], Wei Li [4], Somjai Nupueng [1*]

[1] *School of Accountancy and Finance, Walailak University, 222 Thaiburi, Tha Sala, Nakhon Si Thammarat, 80160, Thailand.*

[2] *School of Civil Engineering and Architecture, Liuzhou Institute of Technology, Liuzhou City, Guangxi, 545616, China.*

[3] *Liujiang District Agricultural and Rural Comprehensive Development Service Center, Liuzhou Agricultural and Rural Bureau, Liuzhou City, Guangxi, 545001, China.*

[4] *College of Earth Sciences, Guilin University of Technology, Guilin City, Guangxi, 541006, China.*

**Abstract**

This study investigated the mechanism through which land transfer impacts farmers' happiness in China, focusing on the mediating roles of household income and social equity, and the moderating effect of social capital. Utilizing convenience sampling through WJX platform, 431 farmers in Guangxi (2024) were selected as samples, and conducted structural equation modeling with Smart-PLS 4.0. Key findings reveal: (1) Land transfer exerts a significant positive effect on farmers' happiness; (2) Household income and social equity mediate 69.63% of this effect, with social equity demonstrating stronger mediation; (3) Social capital amplifies the equity pathway while showing nonsignificant moderation on income effects. Methodologically, this study applied multi-mediation moderated SEM in farmers' happiness studies, integrating both economic and psychosocial dimensions. Theoretically, these results challenge conventional income-centric paradigms by establishing social equity as the dominant mechanism, revealing that policy effectiveness in land reforms depends more on equity perceptions than absolute income gains. They provide empirical support for the application of social capital theory and social equity theory in rural land issue studies, highlighting critical factors that should be considered in policy formulation, and provide valuable empirical evidence for the government and policymakers, aiding in the optimization of land transfer policies to enhance farmers' happiness.

**Keywords:**
Farmers' Happiness;
Land Transfer;
Mediation Effect;
Social Aspects.

**Article History:**

| | | | |
|---|---|---|---|
| **Received:** | 12 | February | 2025 |
| **Revised:** | 15 | June | 2025 |
| **Accepted:** | 03 | July | 2025 |
| **Published:** | 01 | August | 2025 |

## 1- Introduction

Land transfer has emerged as a pivotal mechanism in China's rural revitalization strategy, addressing challenges of land fragmentation and low agricultural productivity [1]. As the world's largest developing nation, China faces the dual imperative of ensuring food security while addressing rural development needs, given its per capita arable land of 0.0934 hectares ($hm^2$); less than half the global average [2]. With 45% of contracted arable land transferred by 2022, this practice enhances resource allocation efficiency while raising critical questions about its socioeconomic impacts [3], particularly on farmers' happiness; a key indicator of rural development quality [4].

Existing literature has established some predominant perspectives: Firstly, economic utility theory emphasizes land transfer's income effects, demonstrating its capacity to increase household income through mechanization and

* **CONTACT**: weiqiang7400@163.com; somjai.nupueng@gmail.com

**DOI:** http://dx.doi.org/10.28991/ESJ-2025-09-04-010

nonagricultural employment [5]. There remains a significant gap in understanding how it influence farmers' happiness, particularly through social and psychological mechanisms [6]. Secondly, institutional economics approaches highlight how secure land rights and equitable transfer processes enhance happiness [7]. Existing research on farmers' happiness has primarily focused on material determinants, including poverty alleviation programs [8], pension systems [9], and healthcare access [10]. However, non-economic factors such as social equity and social capital have received limited attention, despite their growing relevance in an era of rural-urban integration. Recent studies suggest that land transfer not only affects income but also reshapes social dynamics, potentially exacerbating or mitigating perceptions of equity in resource distribution [11], indicating the need to explore non-economic pathways. Thirdly, Social capital frameworks identify network resource, trust, and participation as facilitators of successful land transactions [12], but its moderating effects on land transfer outcomes are unclear.

However, some critical gaps persist: Firstly, regional bias dominates current research, with most of empirical studies focusing on eastern China's developed regions, while ethnic minority areas like Guangxi—characterized by unique land tenure systems and cultural contexts—remain underexplored [10]. Secondly, existing models predominantly adopt single-mediation frameworks (e.g., income → happiness), neglecting the synergistic effects of social equity mechanisms. Thirdly, the moderating role of social capital in equity pathways remains theoretically postulated but empirically unverified [5].

Against this backdrop, this study addresses these key limitations in the literature by examining data from 431 farmers in Guangxi, provides large-scale empirical evidence from China's southwestern ethnic regions. Combining social equity theory and social capital theory, develops a moderated mediation model. Quantifying the relative contributions of household income and social equity, identifying social equity—not household income—as the dominant mediator, challenges development paradigms prioritizing economic metrics over equity perceptions. Identifying how social capital moderates these relationships. These approaches bridge the gap between economic efficiency and social equity perspectives, providing actionable insights for policymakers aiming to enhance farmers' happiness through land reforms. This study aims to answer the following questions:

- What is the association between land transfer and farmers' happiness?
- How does land transfer relate to household income and social equity?
- What is the influence of household income and social equity on farmers' happiness?
- Do household income and social equity mediate the relationship between land transfer and farmers' happiness?
- What role does social capital play in the associations among land transfer, household income and social equity?

## 2- Literature Review and Hypothesis

### *2-1- Definition of Farmers' Happiness*

Subjective well-being (SWB) and psychological well-being (PWB) are included in happiness. Although SWB is associated with less negative emotions, more positive emotions, and a better level of life satisfaction, PWB, which has its roots in Aristotle's "realization theory," emphasizes self-realization and life's meaning [13]. Xing (2002) [14] defines subjective well-being as a positive, pleased state impacted by personal needs, values, and objective conditions. This definition combines quality of life and psychological state. Wang et al. (2020) [15] described farmers' happiness as their overall assessment of their material, spiritual, ecological, and social environments. In this study, farmers' happiness is defined as the balance or imbalance between reality and expectations following land transfer, representing a comprehensive evaluation of life quality and satisfaction on the basis of self-determined criteria.

### *2-2- The Influencing Factors of Farmers' Happiness*

Traditional utility theory suggests that happiness derives from economic development and higher income levels [16]. However, the happiness treadmill theory posits that marginal utility decreases as income increases, leading to diminished happiness from increased wealth [17]. Although the impact of income on happiness is generally underestimated, it does play a role [18].

Research on Chinese farmers' happiness began in the 1980s, identifying individual, family, and societal factors as key influences. Education and political status positively impact happiness [19]. Social skills are also positively correlated with happiness. Family factors such as income, age, marital status and total population significantly affect happiness; when the per capita net income of households weighted by "equivalent family size" is lower than 40% of the national (or urban and rural) median, the happiness level of residents decreases significantly [15]. Social factors such as medical insurance, "new rural insurance", and public services also play crucial roles [7, 9]. Burnett (2012) [20] emphasized the importance of institutional protection for happiness, whereas Nie's (2011) [21] research on land-lost farmers identified

key happiness factors such as life satisfaction, human capital, health and policy, suggesting the need for improved education, investment, supervision, agricultural land systems, and medical security.

Despite extensive research, studies on farmers' happiness have focused primarily on material conditions such as demographics and income, with less attention given to nonmaterial factors such as family status and social life. Further investigations are needed to understand the correlations among land transfer, household income, social equity, and farmer happiness. Understanding the effects of land transfer on farmers' happiness in Guangxi, a significant location for ethnic minorities in southwestern China, is crucial for advancing rural development and fostering social peace. Hence, conducting a study on the correlation between land transfer and farmers' happiness is highly important, given the survey data collected from 431 farmers in Guangxi. This work has provided theoretical enrichment for research on land transfer and farmers' happiness and has addressed any existing inadequacies. Additionally, it yields significant outcomes for the government in formulating laws on land transfer and promoting the happiness of farmers in practical terms.

Therefore, this research utilizes survey data from Guangxi to examine this topic. This paper initially examines the influence of land transfer on the happiness of farmers, starting from a theoretical perspective. It proposes a theoretical framework that considers household income and social equity as mediating variables and social capital as a moderating variable in the impact of land transfer on farmers' happiness. Moreover, a variety of data analysis techniques are available. Furthermore, the findings of the research are presented and analyzed. In conclusion, this study presents suitable approaches and suggestions to act as a roadmap for the formulation of efficient policies that aim to encourage farmers' active participation in land transfer and improve their general happiness.

### *2-3- Theoretical Analysis*

First, carrying out equity land transfer can not only unleash the full potential of farmers but also inspire them to work with greater diligence and efficiently manage their farms. The activation of the agricultural land market has the potential to promote urbanization and alleviate the adverse effects of wealth disparity on the happiness of farmers [22]. Social capital theory provides a perspective for understanding how social structures affect individual behavior and outcomes. Social capital can affect farmers' behavior and resource acquisition in the land transfer process. Second, social equity theory emphasizes the importance of the fair distribution of social resources and individual perception of equity for social stability and individual well-being, land transfer involves the acquisition, utilization, and distribution of resources, which may directly impact farmers' life satisfaction and emotions, thereby influencing their overall happiness. It also lead to changes in farmers' family structures, social mobility, income distribution disparities, unequal opportunities, and deviations in policy implementation, all of which directly influence their sense of social equity [23]. It plays a crucial role in shaping farmers' happiness through its effects on household income and social equity. Finally, a high level of social capital may assist farmers in adapting to changes in land transfer by providing supplementary resources and support, thereby reducing uncertainty and increasing happiness. Within rural China, the main social networks consist of kinship and geography. The significance of land in social security increases the demands of farmers for equity and their aspirations for future prosperity. Consequently, this topic merits thorough investigation. This paper explores the intricate relationships among land transfer, social capital, household income, social equity, and farmers' happiness, as depicted in Figure 1.

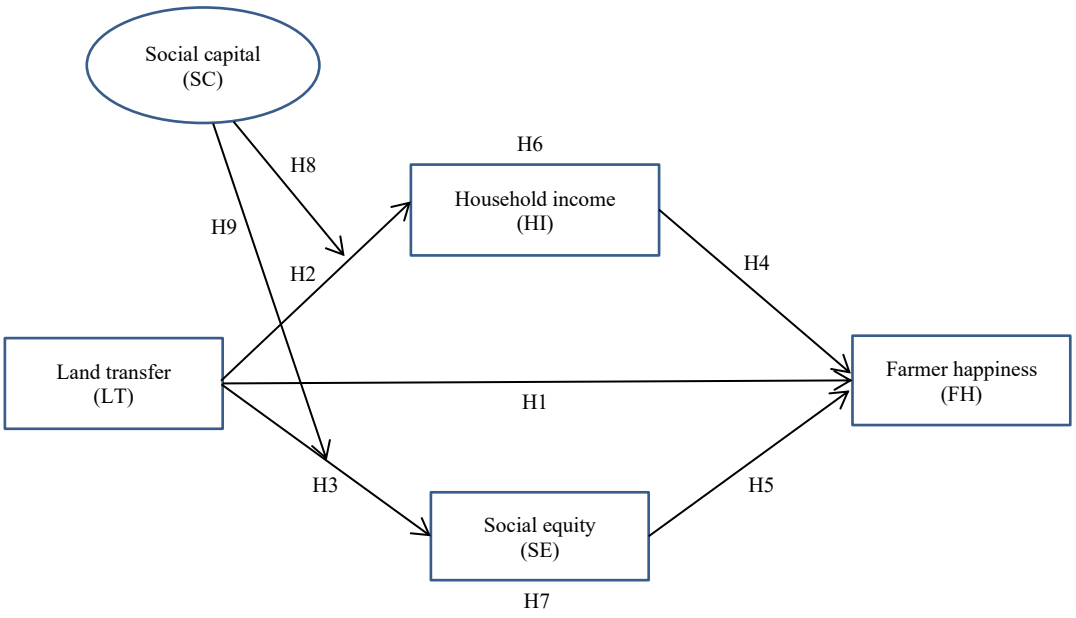


**Figure 1. The effect of the land transfer mechanism on farmer happiness**

### *2-4- Hypothesis*

A quantitative study conducted by Wang et al. (2020) [15] established a direct relationship between land outflow and happiness. In the context of widespread large-scale and mechanized production, many households face insufficient per capita cultivated land, leading to underemployment among rural residents. This situation fostered a desire to acquire more land to fully utilize the labor force and unlock the agricultural production potential of rural residents. The inflow of additional land can expand the agricultural cultivation area, generating economies of scale and increasing the satisfaction derived from farming operations, thereby improving farmers' happiness [24]. Hu et al. (2023) [25] also reported that land inflow can increase farmers' happiness. The rational land consensus within village communities emphasizes individual farmers' survival while prioritizing the integration of land resources through collective action. This approach aims to achieve the overall survival and development of the village, ultimately maximizing income. Farmers' happiness is most directly influenced by their tangible living conditions. According to this approach, we propose the first hypothesis:

***H1:*** *Land transfer positive impact on farmers' happiness.*

According to Wang & Wang (2022) [5], empirical data indicate that the transfer of land might lead to an increase in income disparity among farmers. However, if more farmers who have not yet engaged in land transfer were to participate, this gap could be reduced. Land transfer has been shown to increase rural household incomes. Ke et al. (2023) [26] reported that land outflow increases the total income of rural residents by increasing operational, wage, and transfer income. Conversely, land inflow increases total household income by significantly increasing operational income, despite a slight decrease in wage income. A positive correlation between land inflow and income level was established [9]. The outflow of land enables the rural labor force to detach from agricultural activities, thereby unlocking labor dividends and expanding opportunities for nonagricultural employment and entrepreneurship. The income-boosting effects of land outflow are particularly significant [22]. On the basis of this analysis, the second hypothesis can be proposed:

***H2:*** *Land transfer positive impact household income.*

Stead & Bibby (2017) [27] examined the perspectives of farmers without heirs on various land transfer options and argued that innovative inheritance methods are necessary to reduce the average age of farmers and ensure sustainable agricultural growth. Under the "separation of three rights" (rural land ownership rights, contractual rights, management rights) framework, rural land transfer faces challenges such as farmers being coerced, difficulties in re-employment, and a lack of bargaining power. Luo et al. (2023) [7] reported that, compared with spontaneous land transfers by individual farmers, those organized by village collectives offer more stable contractual relationships and facilitate larger-scale transfers, which are more conducive to the secure and stable operation of rural land by inflow households. The confirmation of land ownership and the process of land inflow are key components of the "separation of three rights" reform in agricultural land, making farmers more eager to benefit from expanded capital sources, improved technological transfers, and other inclusive influences, thereby significantly promoting the endogenous growth of agricultural capital, technology, and labor. Patil et al. (2020) [28] suggested that the size of rural households and the quality of their land are critical determinants of land management scale and that the misallocation of enterprise resources has increased over time. Thus, effective land transfer has emerged as an essential solution. On the basis of this analysis, a third hypothesis can be proposed:

***H3:*** *Land transfer positive impact social equity.*

Li et al. (2023) [16] confirmed the roles of both absolute and relative income in explaining differences in happiness among villages, with absolute income having the strongest explanatory power, followed by relative income. However, Xiang and Gao (2023) [19] reported that farmers' happiness is indeed influenced by their household income. They observed that the impact of relative income on happiness is stronger than that of absolute income. Alobo Loison (2019) [29] reported a notable and favorable association between fluctuations in the wealth of households and the practice of diversifying livelihoods. This finding emphasizes the importance of having a stable income for the overall happiness and contentment of farmers. Although nonagricultural income provides substantial material support for improving farmers' quality of life, these incomes often stem from low-end secondary and tertiary industries, where enterprises have limited resilience to risks. This vulnerability increases unemployment risk for farmers, especially during crises such as the Coronavirus Disease 2019 (COVID-19) pandemic. Furthermore, farmers' nonagricultural employment rights are often inadequately protected, with some enterprises reluctant to provide social insurance or pension funds and even delaying wage payments, thereby diminishing farmers' optimism for the future. Additionally, nonagricultural income typically involves a "separation of people and households," as the growth of such income often necessitates long-term family separation [7], which can negatively impact farmers' happiness. On the basis of the above analysis, the fourth hypothesis can be proposed:

***H4:*** *Household income impacts farmers' happiness.*

Moris (2021) [30] reported that an enhanced perception of social equity is correlated with increased subjective well-being among Chinese residents. Zu (2018) [31] showed that the disparity in income between urban and rural areas, as well as the degree of democracy, has a significant effect on the happiness of farmers via data from Zhejiang and Sichuan Provinces. In addition, Deng (2019) [32] discovered that social connections, such as those with families, friends, and neighbors, have a substantial positive impact on the happiness of farmers. According to this analysis, to a certain extent, the sense of social equity affects the emotional experience and life satisfaction of farmers, thus influencing their happiness. Therefore, the fifth hypothesis is proposed:

***H5:*** *Social equity impacts farmers' happiness.*

The happiness levels of suburban landless farmers did not increase proportionally with increasing family net income. With the outflow of land, farmers who had been engaged in agricultural production were transferred to nonagricultural employment and had the opportunity to earn higher nonagricultural income and improve their happiness [33]. Conversely, Geng et al. (2021) [23] noted that, owing to the inflow of land, farmers put less labor and working hours into the nonagricultural sector, and their nonagricultural income is lower, which may reduce their happiness. Liu et al. (2020) [34] reported that land inflow does not have a significant direct effect on farmers' life satisfaction but indirectly improves their life satisfaction by increasing household income. A sixth hypothesis can be proposed as a result of this analysis:

***H6:*** *Land transfer affects farmer happiness through household income, and household income has a mediating effect on the relationship between land transfer and farmer happiness.*

The equity of land transfer and its perception are very important for rural areas and farmers in China, where the relationship between people and land is strong [3]. Nie (2011) [21] suggested that living conditions, social participation and working status have indirect effects on the welfare of land-lost farmers by affecting compensation equity. Liu et al. (2020) [34] suggested that a lack of nonagricultural labor skills may lead to unstable job income, potentially reducing farmers' happiness. Furthermore, the study conducted by Markussen et al. (2018) [35] demonstrated the mediating function of village social standing in augmenting the subjective well-being of entrepreneurial farmers. The seventh hypothesis can be formulated on the basis of this analysis:

***H7:*** *Land transfer affects farmers' happiness through social equity, and social equity has a mediating effect on the relationship between land transfer and farmers' happiness.*

Within the realm of land transfer and social capital, Chen & Wang (2016) [36] suggested that "special trust" (including kinship, blood relationships and geographical relationships) is the key factor in promoting the cooperation of land transferers. The greater the social status and the wider the relationship network is, the easier it is for land renters to enter the land transfer market. Xu et al. (2021) [37] reported that land transfers among many farmers are often based on familial and personal relationships, allowing land management rights to be obtained at lower rents through these social ties. A study conducted by Cheng & Zheng (2022) [4] revealed that social capital can not only significantly promote the participation of new agricultural operators in land transfer but also affect farmers' innovation and entrepreneurship and that the social relationship network can significantly enhance farmers' entrepreneurial behavior in different places.

Moreover, social capital is crucial in facilitating farmers in broadening their access to external funding sources and attaining high levels of financial scale [38]. Farmers with extensive social networks are more inclined to engage in self-employment [12]. According to Deininger et al. (2021) [39], social interaction activities accelerate the exchange of resources, expand the scope of information transmission, increase the total number of demanders and suppliers, help network members transmit honest resource information, and reduce transaction and supervision costs. In summary, social capital not only facilitates the acquisition, allocation, and integration of resources but also improves the happiness of farmers by enabling them to access information, identify opportunities, and generate insights. This is achieved through participation in land transfer. On this basis, the following hypotheses may be proposed:

***H8:*** *Social capital has a moderating effect on the impact of land transfer on household income.*

***H9:*** *Social capital has a moderating effect on how land transfer affects social equity.*

## 3- Material and Methods

### *3-1- Data Sources*

The second phase of China's rural revitalization strategy is dedicated to the modernization of agriculture and rural development, with land resources serving as a critical component of this endeavour. China is a significant agricultural nation. In the context of rural revitalization, land transfer is essential for the promotion of industrial prosperity. Land not only is a source of livelihood and employment for rural populations but also functions as a final safety net and a form of social security. Through land transfer, farmers endeavour to improve their rights, interests, and overall happiness. This study employs survey data from Guangxi farmers on land transfer that were obtained in 2024. Guangxi was selected for

this research because of its significance as a key province in southwestern China and as a representative of ethnic minority areas. Its economic development is at a medium level compared with that of other regions in China, and it plays a crucial role in economic interactions between China and Southeast Asia. Additionally, Beiliu city in Guangxi is one of the 33 pilot counties (or cities/districts) for the State Council's "three land" reform, making it a notable example with a substantial land market transaction scale.

This survey employed a convenience sampling method, selecting one or two cities from each of Guangxi's five regions: North Guangxi, Southeast Guangxi, Central Guangxi, Northwest Guangxi, and the Beibu Gulf. This selection was made to capture the regional variations within Guangxi, as these regions may differ in terms of economic development levels, land use patterns, and cultural characteristics that could potentially influence farmers' decisions regarding land transfer and their overall happiness. Collaborating with local government agencies such as the Bureau of Statistics and the Bureau of Natural Resources, two or three counties (or cities/districts) were chosen from each city. Within each county (or city/district), 25 to 30 farmers were randomly selected for participation. The survey utilized both household visits and the Wenjuanxing (WJX) online questionnaire platform. Out of the 480 recovered questionnaires, 431 valid and complete responses were collected after excluding those with missing, incomplete, or inconsistent data, resulting in an effective response rate of 89.79%; the survey covered 17 counties (or districts/cities), ensuring a relatively balanced sample distribution and a representative dataset. While convenience sampling enhances feasibility in ethnically diverse and geographically complex regions like Guangxi, it may introduce selection bias. For instance, farmers accessible through government partnerships (Bureau of Statistics/Natural Resources) and the WJX platform likely represent more politically engaged and digitally connected households. To mitigate this, sampled 17 counties across all five Guangxi subregions, ensuring ecological diversity comparable to China's rural typology, and compared sample's demographics with China's 2023 Statistical Yearbook, deviations were <8% for key variables, suggesting moderate generalizability.

### *3-2-Descriptive Analysis*

In this study (Table 1), the sample size was 431. In addition to the variable analysis, we also examined some demographic characteristics of the sample. The age of the farmers in the sample ranged from 26 to 55, with an average age of 39. Educational attainment was relatively low, with approximately 46.2% having less than a high school education. Regarding family size, the average number of family members per household was 4. All the variables are continuous variables, and the range of values is 1--5. The mean value for land transfer (LT) was 3.244, with a standard deviation (S. D.) of 1.286, reflecting considerable variability in land transfer practices. Household income (HI) has a mean value of 3.257 and a standard deviation of 1.274, indicating notable differences in farmers' satisfaction with their income. The mean value for farmer happiness (FH) is 3.450, with a standard deviation of 1.176, suggesting overall positive happiness levels but significant individual variation. Social equity (SE) has a mean value of 3.383 and a standard deviation of 1.080, showing that farmers generally hold a slightly positive view of social equity, with relatively minor differences in individual perceptions. Social capital (SC) has a mean value of 2.515 and a standard deviation of 1.017, indicating that most farmers perceive social capital to be low, with minimal variation in perceptions among individuals. Through these descriptive statistical analyses, we can deeply understand the basic distribution of each variable, and the data conform to the normal distribution, providing reliable data support for subsequent empirical analysis.

**Table 1. Descriptive statistics of the variables**

| Variable | LT | FH | HI | SE | SC |
|---|---|---|---|---|---|
| Mean | 3.244 | 3.450 | 3.257 | 3.383 | 2.515 |
| S. D. | 1.286 | 1.176 | 1.274 | 1.080 | 1.017 |

### *3-3-Explanation of Variables*

This study's variables were selected on the basis of social capital theory [40] and social equity theory [41]. To ensure the reliability and validity of the measurement scale, the dimensions and items for the variables were drawn from established scales used in previous research. All variables are continuous rather than categorical, resulting in continuous data for this study. To minimize sample-related errors, a five-point Likert scale was used. According to Wolf et al. (2013) [42], a sample size between 200 and 500 is generally sufficient for the structural equation model (SEM). Using the Yamane (1973) [43] formula, a sample size of 431 farmers is deemed adequate to meet the requirements of this study.

In this study, farmer happiness serves as the dependent variable, whereas land transfer is the independent variable. The mediating variables are household income and social equity, and the moderating variable is social capital (Table 2). Each question on the survey offers five response options, rated on a scale from 1 to 5. Negative emotions, land transfer, and household income are scored inversely. It should be noted that in addition to the variables explored in this study, there may be other confounding variables that could influence farmers' happiness. Government subsidies, community

support, village economic level, family size, marital status, and health status as extraneous variables. To enhance ecological validity, pre-survey interviews was conducted with 30 farmers in Beiliu city (Guangxi). Interviews explored perceived happiness drivers, equity concerns, and social capital utilization. Qualitative insights revealed that "land transfer trust" is culturally rooted in reciprocity, prompting to add one more ST item.

**Table 2. Variables in the research**

| Variables | Items | References |
|---|---|---|
| **Farmer Happiness (FH)** | | |
| Life satisfaction (LS) | 4 | Han (2022) [44]; Yan et al. (2018) [24] |
| Positive emotion (PE) | 4 | Yan et al. (2018) [24] |
| Negative emotion (NE) | 4 | Yan et al. (2018) [24] |
| **Land Transfer (LT)** | | |
| Transfer behavior (TB) | 1 | Fei et al. (2021) [45]; Chen et al. (2023) [12] |
| Transfer scale (TS) | 1 | Liu et al. (2024) [11] |
| Transfer period (TP) | 1 | Liu et al. (2024) [11] |
| **Household Income (HI)** | | |
| Per capita gross income (PCGI) | 1 | Geng et al. (2021) [23]; Wang & Wang (2022) [5] |
| Agricultural income (AI) | 1 | Geng et al. (2021) [23]; Wang & Wang (2022) [5] |
| Nonagricultural income (NAI) | 3 | Geng et al. (2021) [23]; Liu et al. (2024) [11] |
| **Social Equity (SE)** | | |
| Result equity (RE) | 4 | Han (2022) [44]; Liu et al. (2023) [9]; Zu (2018) [31] |
| Opportunity equity (OE) | 3 | Han (2022) [44]; Zu (2018) [31]; Moris (2021) [30] |
| Procedural equity (PrE) | 3 | Liu et al. (2023) [9] |
| **Social Capital (SC)** | | |
| Social network (SN) | 3 | Chen & Wang (2016) [36]; Zhang et al. (2015) [38] |
| Social trust (ST) | 4 | Chen et al. (2023) [12]; Chen & Wang (2016) [36] |
| Social participation (SP) | 3 | Chen et al. (2023) [12]; Zhang et al. (2015) [38] |

### *3-4- Model Setting*

This research uses a structural equation model to examine the influence of land transfer on farmers' happiness, as established by Sardeshmukh & Vandenberg (2017) [46]. The connection between the observed variables and their underlying latent variables is represented as follows:

$$X = \Lambda_x \xi + \delta \quad (1)$$

$$Y = \Lambda_y \eta + \varepsilon \quad (2)$$

where; $\xi$ represents the exogenous latent variable, whereas $\eta$ represents the endogenous latent variable. X represents the observed variable of $\xi$, whereas Y represents the observed variable of $\eta$; $\delta$ refers to the measurement error of X; $\varepsilon$ refers to the measurement error of Y. The symbol $\Lambda x$ represents the connection between the exogenous latent variable $\xi$ and the observed variable X. It indicates the factor load on X. The link between the endogenous latent variable $\eta$ and the observable variable Y is denoted by $\Lambda_y$, which represents the factor load of Y on $\eta$.

The link between latent variables and latent variables is denoted as:

$$\eta = B\eta + \Gamma\xi + \zeta \quad (3)$$

where; $B$ represents the relationship between each endogenous latent variable and other endogenous latent variables.$\Gamma$ represents the effect of each exogenous latent variable on other endogenous latent variables. $\zeta$ represents the residual of the structural equation.

## 4- Results and Discussion

In this section, the fit of the Smart-PLS4.0 research model was tested, and the research hypotheses were verified. The model included five latent variables and 38 observed variables (Figure 2).

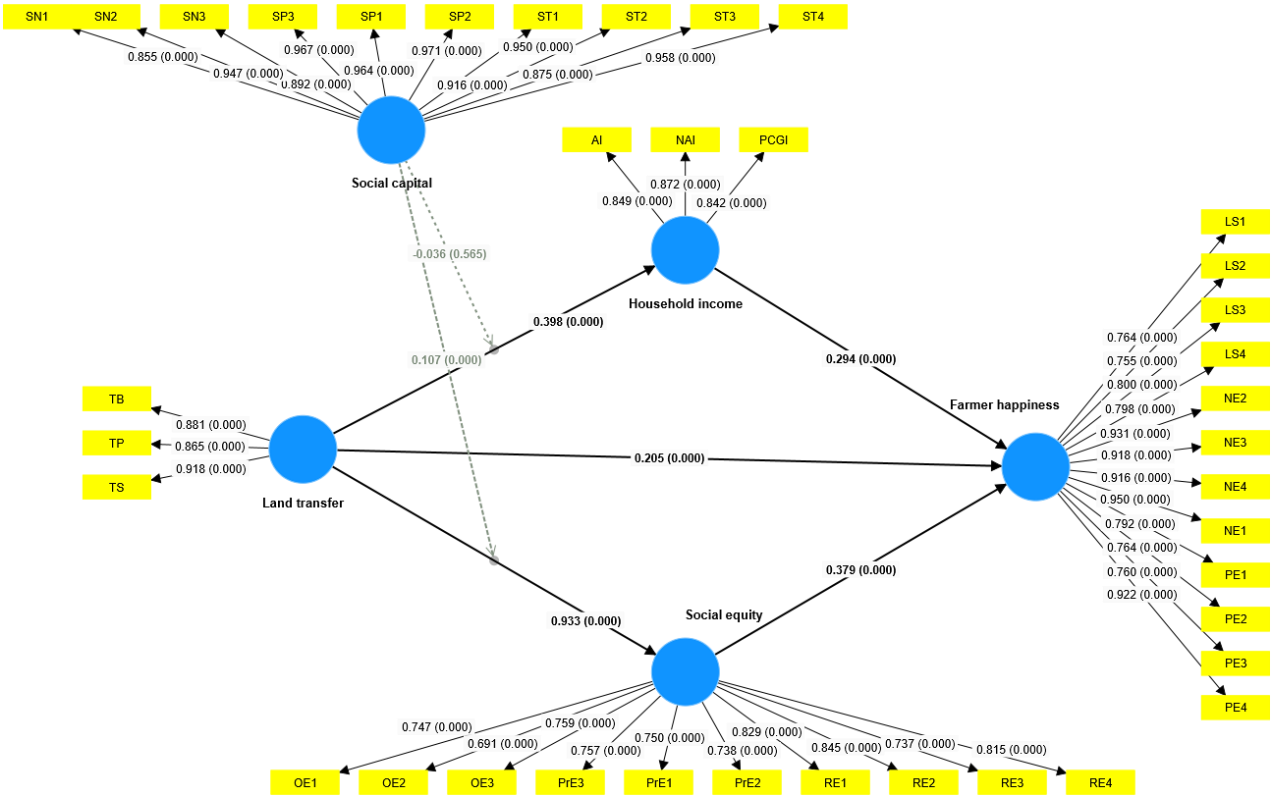


**Figure 2. Test results of the effect of the land transfer mechanism on farmer happiness**

### *4-1-Data analysis*

### *4-1-1- Reliability Analysis and Convergent Validity*

The questionnaire exhibited an aggregate Cronbach's alpha value of 0.921, as indicated in Table 3 of the study. Furthermore, the Cronbach's alpha of each variable exceeded 0.810, which is significantly higher than the commonly accepted threshold of 0.700 [47]. This suggests that the measurement scales for each variable dimension are highly consistent, indicating a high degree of internal consistency dependability. Moreover, the composite reliability (CR) values for all the variables exceeded the typical threshold of 0.700, ranging from 0.890-0.985 [48]. This substantiates the high level of reliability of each variable.

Convergent validity was also evaluated in this study to guarantee that comparable constructs were consistently measured. Convergent validity was evaluated via average variance extracted (AVE), with values above 0.500 deemed acceptable [48]. The convergent validity of this study was strongly supported by the AVE values, which ranged from 0.590 to 0.866 for all the variables.

**Table 3. Cronbach's alpha, CR, and AVE for the total schedule**

| | Cronbach's alpha (α > 0.700) | Composite reliability (CR > 0.700) | Average variance extracted (AVE > 0.500) |
|---|---|---|---|
| Questionnaire Population | 0.921 | - | - |
| Land Transfer | 0.867 | 0.918 | 0.789 |
| Farmer Happiness | 0.962 | 0.967 | 0.710 |
| Household Income | 0.815 | 0.890 | 0.730 |
| Social Equity | 0.922 | 0.935 | 0.590 |
| Social Capital | 0.983 | 0.985 | 0.866 |

### *4-1-2- Discriminant Validity and Structural Validity*

The total Kaiser-Meyer-Olkin (KMO) value for the formal survey questionnaire is 0.940, with each variable's KMO value exceeding 0.700 [48]. This indicates that the validity of the questionnaire is satisfactory. Additionally, the P value is 0.000 (Table 4), confirming the suitability of the data for further analysis.

**Table 4. KMO test and Bartlett sphericity test**

| | KMO | Bartlett sphericity test | |
|---|---|---|---|
| | | Chi-square value | *P* |
| Questionnaire Population | 0.940 | 19863.888 | 0.000 |
| Land Transfer | 0.736 | 624.358 | 0.000 |
| Farmer Happiness | 0.960 | 5655.454 | 0.000 |
| Household Income | 0.707 | 448.174 | 0.000 |
| Social Equity | 0.952 | 2381.362 | 0.000 |
| Social Capital | 0.932 | 8676.703 | 0.000 |

As illustrated in Table 5, the square root of the Average Variance Extracted (AVE) for each variable (found along the main diagonal) exceeds the correlation coefficients between this variable and the other variables [48]. This finding indicates that all dimensions of the scale meet the standards for discriminant validity. Consequently, the formal scale questionnaire is suitable for building a structural equation model.

**Table 5. Discriminant validity table**

| | FH | HI | LT | SC | SE |
|---|---|---|---|---|---|
| **FH** | 0.843 | | | | |
| **HI** | 0.447 | 0.854 | | | |
| **LT** | 0.381 | 0.259 | 0.888 | | |
| **SC** | -0.072 | -0.013 | 0.591 | 0.930 | |
| **SE** | 0.510 | 0.263 | 0.264 | -0.541 | 0.768 |

Verifying the relationship between each latent variable and its corresponding measurement items helps assess whether the model's internal structure aligns with theoretical expectations. This is typically accomplished through confirmatory factor analysis (CFA). In this study, the factor loadings ranged from 0.691 to 0.971, and each observed variable on its respective latent variable exceed 0.600, with most above 0.700 (Table 6) [48]. These results indicate that the structural validity is sound and that the observed variables effectively represent their corresponding latent variables.

### *4-1-3- Model Fit*

It is essential to evaluate the model fit index to determine the extent to which the observed data are accounted for by the model when SEM analysis is conducted via SmartPLS. The standardized root mean square residual (SRMR) for this study is 0.059, as shown in Table 7, which is less than the threshold of 0.080 [48]. This value is relevant to both the saturated and estimated models, suggesting that the model and the data are well matched. The geodesic distance (d_G) is 1.844, the squared Euclidean distance (d_ULS) of the saturated model is 2.557, d_ULS is 2.587, and d_G is 1.854 for the estimated model. In general, a superior model fit is indicated by lower d_ULS and d_G values [49]. The findings of this investigation suggest that the estimated model closely approximates the theoretical ideal model since it is highly similar to the saturated model.

In this study, the chi-square values are 3871.621 for the saturated model and 3881.820 for the estimated model. A smaller chi-square significance value often suggests a stronger correspondence between the model and the observed data [48]. The estimated model closely approximates the ideal model structure, as evidenced by the minimal difference between the chi-square values of the saturated and estimated models. Additionally, the normed fit index (NFI) value of 0.811 in this study is considered reasonable for most applications. Although an NFI value over 0.900 typically indicates a strong model fit, values above 0.800 are considered acceptable in more intricate models [49].

The fit indices indicate that the SEM in this investigation is a satisfactory fit. The SRMR values suggest that the model is well aligned with the data, and the d_ULS and d_G values further corroborate that the model's fit is nearly ideal. While the chi-square value may be somewhat high, it is a common phenomenon in many samples and should not be excessively interpreted. Despite the complexity of the models, the NFI values remain reasonable. Overall, the fit of the research model is acceptable since it successfully clarifies the impact of land transfer on farmers' happiness and provides a reliable basis for empirical investigation.

**Table 6. Factors load scale**

| | FH | HI | LT | SC | SE |
|---|---|---|---|---|---|
| **LS1** | 0.764 | | | | |
| **LS2** | 0.755 | | | | |
| **LS3** | 0.800 | | | | |
| **LS4** | 0.798 | | | | |
| **NE1** | 0.950 | | | | |
| **NE2** | 0.931 | | | | |
| **NE3** | 0.918 | | | | |
| **NE4** | 0.916 | | | | |
| **PE1** | 0.792 | | | | |
| **PE2** | 0.764 | | | | |
| **PE3** | 0.760 | | | | |
| **PE4** | 0.922 | | | | |
| **AI** | | 0.849 | | | |
| **NAI** | | 0.872 | | | |
| **PCGI** | | 0.842 | | | |
| **TB** | | | 0.881 | | |
| **TP** | | | 0.865 | | |
| **TS** | | | 0.918 | | |
| **SN1** | | | | 0.855 | |
| **SN2** | | | | 0.947 | |
| **SN3** | | | | 0.892 | |
| **SP1** | | | | 0.964 | |
| **SP2** | | | | 0.971 | |
| **SP3** | | | | 0.967 | |
| **ST1** | | | | 0.916 | |
| **ST2** | | | | 0.950 | |
| **ST3** | | | | 0.875 | |
| **ST4** | | | | 0.958 | |
| **OE1** | | | | | 0.747 |
| **OE2** | | | | | 0.691 |
| **OE3** | | | | | 0.759 |
| **PrE1** | | | | | 0.750 |
| **PrE2** | | | | | 0.738 |
| **PrE3** | | | | | 0.757 |
| **RE1** | | | | | 0.829 |
| **RE2** | | | | | 0.845 |
| **RE3** | | | | | 0.737 |
| **RE4** | | | | | 0.815 |

**Table 7. Indicators of model fit**

| Index | Judging Standard | Research Model | | Compliant |
|---|---|---|---|---|
| | | Saturated model | Estimated model | |
| SRMR | ＜ 0.080 | 0.059 | 0.059 | Yes |
| d_ULS | Smaller is better | 2.557 | 2.587 | Yes |
| d_G | Smaller is better | 1.844 | 1.854 | Yes |
| Chi-square | Smaller is better | 3871.621 | 3881.820 | - |
| NFI | ＞ 0.800 | 0.811 | 0.811 | Yes |

### *4-2- The Direct Effect of Land Transfer on Farmers' Happiness*

The results of the SEM analysis demonstrate the importance of the hypothesis routes, as shown in Table 8. The path coefficient representing the impact of land transfer on farmers' happiness is 0.205, and it is statistically significant, with a p value of 0.000. These results provide evidence of a significant and positive influence of land transfer on farmers' happiness, suggesting that encouraging land transfer can successfully increase the happiness of farmers. This discovery is consistent with prior investigations conducted by Yan et al. (2018) [24] and Hu et al. (2023) [25], who identified land transfer as a catalyst for agricultural efficiency and non-agricultural employment opportunities, can increase farmers satisfaction with agricultural operations and boost overall happiness, providing further evidence in support of hypothesis H1. However, this study extends prior research by emphasizing the role of land ownership security—a unique feature of China's "three rights separation" policy—in amplifying happiness through reduced livelihood uncertainty. According to Kumar et al. (2021) [50], farmers who have verified their land rights tend to attain greater levels of happiness than those who do not have such confirmation. In this study, the land ownership confirmation rate among farmers was 100%, and land transfer allowed farmers to transition from agricultural production to other employment opportunities. Their quality of life is improved, and their happiness is consequently increased as a result of secure land ownership and improved employment prospects. Furthermore, farmers' happiness is significantly impacted by the characteristics of their location [15]. Farmers who engage in land transfer may experience an increase in contentment as a result of their enhanced social status. However, while land transfer generally increases happiness, it also intensifies negative emotions more than it enhances life satisfaction and positive emotions (e.g., NE factor loadings >0.900). This increase in negative emotions may result from disruptions caused by land transfer, such as changes in family structure, production methods, lifestyles, work types, community relationships, and the environment. This discrepancy highlights how institutional safeguards in ethnic minority regions may enhance the psychological benefits of land transfer. This dual effect mirrors Shang and Li's (2022) [6] observation of "transition anxiety" in land-lost farmers, suggesting that farmers experience similar stressors from disrupted social networks and occupational shifts. Future policies should address these psychosocial costs through community support programs.

**Table 8. Model parameter coefficient**

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| LT → FH | 0.205 | 0.206 | 0.045 | 4.535 | 0.000 |
| LT → HI | 0.398 | 0.402 | 0.066 | 6.073 | 0.000 |
| LT → SE | 0.933 | 0.931 | 0.042 | 22.320 | 0.000 |
| HI → FH | 0.294 | 0.295 | 0.045 | 6.499 | 0.000 |
| SE → FH | 0.379 | 0.378 | 0.049 | 7.654 | 0.000 |

The path coefficient representing the influence of land transfer on household income is 0.398, which is statistically significant, with a p value of 0.000. The results demonstrate a substantial and favorable impact of land transfer on household income, indicating that land transfer effectively increases income. These findings align with those of prior studies [9, 22] and support Hypothesis H2. Extension of Liu et al. (2023) [9] reported land inflow and outflow as dual drivers of income growth. Land transfer influences household income in two key ways: land inflow increases agricultural income through increased mechanization, whereas land outflow enhances nonfarm income by creating employment opportunities [4]. In particular, for low-income farmers, the income benefits from land transfer are more pronounced, contributing to a reduction in income disparity within rural areas [3]. Guangxi's centralized transfer model (e.g., village-led leasing) reduced transaction costs, amplifying income gains—a finding consistent with Chen et al. (2021) [22] but with higher effect size. Consistent with the law of diminishing marginal returns, the average sample farmer transfers 1.33 $hm^2$ of land. The study reveals that larger scales of land transfer are associated with increased property and wage income for farmers engaged in nonagricultural work, leading to an overall rise in total income. Moreover, behavior, scale, and period of land transfer positively affect income growth. However, to achieve a stable and reasonable increase in household income, further research is needed to explore the optimal scale and duration of land transfer, considering the diminishing marginal returns.

The path coefficient for the impact of land transfer on social equity is 0.933, with a p value of 0.000, suggesting a statistically significant and positive influence. These findings indicate that land transfer improves farmers' sense of social equity. This finding supports H3 and aligns with Luo et al. (2023) [7], although it contrasts with Shang and Li (2022) [6], who argue that the security function of the rural homestead system negatively affects perceptions of social equity. This study primarily addresses the transfer of agricultural land. Guangxi's collective mediation (89% transfers via village committees) enforced transparency, aligning with Luo et al.'s (2023) [7] emphasis on institutional trust. According to the data from the sample farmers, there is a greater emphasis on result equity (RE factor loading = 0.829) than on opportunity or procedural equity. This focus may stem from the fact that land transfer shifts the property functions of

land, addressing disparities in agricultural land ownership. Efficient allocation of resources and improved mobility of factors help to decrease the disparity in income between urban and rural regions. Additionally, changes in how farmers plan for retirement and nonagricultural employment opportunities help mitigate welfare inequalities associated with rural land transfer [30], thereby improving farmers' perceptions of social equity.

The path coefficient for the relationship between household income and farmers' happiness is 0.294, with a p value of 0.000, indicating a statistically significant and positive influence. This finding indicates that the increase in household income positively influences the level of happiness among farmers, hence supporting Hypothesis H4. This finding aligns with those of previous studies [19, 29], which suggest that higher and more stable household income, along with improved social and economic status, contributes to greater farmer happiness [37]. This corroborates Xiang & Gao's (2023) [19] income-happiness linkage but introduces a critical caveat: Non-agricultural income's marginal utility declined, whereas agricultural income sustained happiness linearly—a pattern unseen in Sun et al.'s (2022) [33] Hubei study. The current high level of employment among farmers and the limited potential for significant improvements in nonagricultural income through land transfer highlight the need for skill enhancement in nonagricultural sectors [33]. This approach is consistent with national policies aimed at reducing income disparities and narrowing the income gap. Optimizing resource allocation has facilitated the adjustment and development of rural industries, enabling local nonagricultural employment opportunities and reducing the costs associated with labor migration. For villages with substantial labor outflows, land adjustment has integrated village governance with economic efficiency improvements to a significant extent. Thus, household income remains a critical factor influencing farmers' happiness.

The path coefficient for the influence of social equity on farmers' happiness is 0.379, with a p value of 0.000, suggesting a statistically significant and positive impact. This finding indicates that improving social fairness has a positive effect on the happiness of farmers, thus supporting Hypothesis H5. This finding aligns with prior studies conducted by Zu (2018) [31] and Moris (2021) [30], who emphasis on relational harmony and equity-wellbeing nexus. As social and economic conditions evolve, particularly with urban–rural integration, farmers' living environments improve, and their material needs are largely met, leading them to place greater emphasis on spiritual happiness. Urban residents prioritized opportunity equity, while rural Guangxi emphasized result equity (e.g., 91% farmers reserved land for descendants), reflecting agrarian intergenerational dependency. Despite land remaining a crucial resource for both production and daily life, farmers are increasingly sensitive to equity in land use [51]. Equity land rights embody result equity, whereas population-based or market-based land distribution reflects opportunity and procedural equity. These aspects of social equity address farmers' spiritual and emotional needs, thereby increasing their overall happiness. Consequently, social equity is emerging as a significant factor influencing farmers' happiness.

### *4-3- The Mediation Effect*

The bootstrapping method, as outlined by Hair et al. (2016) [48], was implemented in this study to estimate a 95% confidence interval with bias correction using 5,000 samples. This was done to investigate the mediating effect. Table 9 shows that the cumulative impact of land transfer (LT) on farmers' happiness (FH) is 0.675, a value that is both positive and significant. This implies that the transfer of land significantly improves the overall content of farmers. Even in the absence of mediation variables, the direct effect of land transfer on happiness is 0.205, suggesting that it has a substantial positive influence on farmers' happiness. Furthermore, the mediation variables are of paramount importance in the relationship between farmers' happiness and land transfer, as evidenced by the total indirect effect of 0.470. The mediation analysis demonstrated that 69.63% of LT's total effect on FH was mediated by household income (HI) and social equity (SE), with SE exhibiting stronger mediation. This challenges the income-centric paradigm dominating earlier studies (Easterlin et al., 2010 [8]; Xiang & Gao 2023 [19]) and underscores SE's growing importance in China's rural equity discourse.

**Table 9. Mediation effect analysis table**

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| LT → FH Total effect | 0.675 | 0.677 | 0.040 | 16.683 | 0.000 |
| LT → FH Direct effect | 0.205 | 0.206 | 0.045 | 4.535 | 0.000 |
| LT → FH Indirect effect | 0.470 | 0.471 | 0.045 | 10.405 | 0.000 |
| LT → HI → FH Indirect effect | 0.117 | 0.119 | 0.029 | 4.005 | 0.000 |
| LT → SE → FH Indirect effect | 0.353 | 0.352 | 0.046 | 7.674 | 0.000 |

The mediating role of household income in the relationship between land transfer and farmers' happiness is confirmed by a significant indirect effect of 0.117 (p value = 0.000). This implies that land transfer indirectly enhances the happiness of farmers by increasing their household income. Other investigations conducted by Sun et al. (2022) [33] and Liu et al. (2020) [34] are consistent with this discovery, providing evidence in favor of hypothesis H6, but contrasts with Luo et al. (2023) [7], who found diminishing marginal returns to income. The discrepancy may reflect Guangxi's lower income levels, where income gains still yield significant happiness improvements. The result corroborate on land transfer's income-boosting effects but reveal nuanced mechanisms, older farmers have rich agricultural production experience and technology and strong agricultural management willingness. The inflow of farmers' years of education increases their operational income. In addition, for farmers with relatively high cultural levels, their nonagricultural employment ability is relatively strong, and the outflow of agricultural land from nonagricultural industries becomes a rational choice, a pattern less evident in Luo et al.'s (2023) study of collective-led transfers [7]. Moreover, land transfer drives the development of rural industries and the potential for multifunctional employment, and farmers obtain more rent or employment and entrepreneurship opportunities [10], which in turn improves the economic condition of farmers' families, increases their consumption level, improves their quality of life, reduces their concerns about future economic uncertainty, and makes them more satisfied and happy.

The considerable mediating function of social equity in the relationship between land transfer and farmers' happiness is statistically verified, as shown by an indirect effect size of 0.353 and a p value of 0.000. This discovery suggests that land transfer indirectly improves farmers' happiness by enhancing social equity. This finding aligns with previous research conducted by Luo et al. (2023) [7] and Liu et al. (2020) [34], providing further evidence for hypothesis H7. This challenges conventional income-centric models, suggesting that land transfer's happiness benefits stem more from perceived equity in resource distribution than absolute income growth. Unlike eastern China's market-driven transfers, Guangxi farmers prioritized result equity (e.g., equity compensation distribution), aligning with Zu's (2018) [31] findings in Sichuan's ethnic communities. The "three rights separation" reform, by clarifying land entitlements, likely amplified perceptions of procedural equity—a factor neglected in Nie's (2011) [21] analysis of coercive transfers. Land guarantees the survival and development of farmers, which reduces the impact of negative factors on happiness. The development of non-agricultural industries and the increase in non-agricultural job opportunities reduce the proportion of agricultural operation income and promote land transfer [52]. As a risk-sharing mechanism, land transfer enables different farmers to distribute agricultural production capital, technology and other resources more equally so that they can have equal opportunities to participate in new economic activities. Increased their sense of trust in society. In the contemporary focus on GDP growth, while economic factors continue to significantly influence farmers' happiness, noneconomic factors, such as social equity, have become increasingly important. This reflects a shift from purely material satisfaction to a broader consideration of equity and opportunity in enhancing farmers' happiness.

### *4-4- Moderation Effect*

This study investigates the impact of social capital (SC) on the link between land transfer and other factors, notably household income and social equity, by assessing its moderating effect. The evaluation of this effect is conducted mainly by analyzing interaction terms. Table 10 displays the path coefficient of -0.036 for the interaction between social capital, land transfer, and household income, along with a P value of 0.565. This suggests that the influence of social capital in this particular situation is not statistically significant. Hence, enhancing land transfer alone may be sufficient to improve household income. This finding contradicts previous studies [12] and suggests that hypothesis H8 is not supported. This selective moderation contrasts with Chen et al. (2023) [12], who found SC critical for income generation via financial access. Several factors may explain this discrepancy. First, household income may be affected by land transfer, government subsidies, household labor allocation and other factors, which may diminish the moderating effect of social capital. Second, the impact of land transfer on household income may involve complex mechanisms such as land quality, market demand and farmer management ability, where social capital may play a less direct role. At present, the social capital in Guangxi and other rural areas is mainly the traditional kinship network and the mutual assistance relationship within the village, which has a limited supporting effect on modern economic activities. Coupled with the low degree of rural land marketization and the imperfect land transfer market mechanism [2], farmers cannot make full use of social capital to obtain more opportunities and resources. Nevertheless, this reality does not diminish the overall importance of social capital in the development of rural areas.

**Table 10. Moderation effect analysis table**

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| SC × LT → HI | -0.036 | -0.033 | 0.062 | 0.576 | 0.565 |
| SC × LT → SE | 0.107 | 0.106 | 0.030 | 3.529 | 0.000 |

The path coefficient of social capital in the association between land transfer and social equity is 0.107, with a P value of 0.000. This implies that social capital is essential for enhancing the beneficial impact of land transfer on social equity. This discovery is consistent with prior studies conducted by Deininger et al. (2021) [39] and Zhang et al. (2015) [38], providing further evidence in favor of hypothesis H9. The result resonates with Leonardi et al.'s (2001) social capital theory: Village collectives in Guangxi leveraged dense networks to enforce transparent bidding processes, reducing elite capture—a problem prevalent in fragmented communities. Social capital can affect the multidimensional poverty of farmers by influencing financial access, education access and other channels, thus reducing the economic and social inequity caused by land transfer. Additionally, social capital plays a crucial role in enabling cooperative networks, enhancing trust among farmers, facilitating information flow, promoting technology dissemination, and providing platforms for farmers to voice their needs [36], thereby enhancing farmers' social participation and support and further improving their perception of social equity.

### *4-5- Testing Summary*

This study reveals that land transfer significantly enhances farmer happiness, with household income (HI) and social equity (SE) partially mediating this effect, the primacy of SE over HI as a mediator revises conventional utility frameworks. Social equity emerged as the critical mechanism, highlighting the need for policies addressing both economic efficiency and distributive equity. Additionally, while social capital (SC) moderates the relationship between land transfer and social equity, it does not significantly moderate the relationship between land transfer and household income, SC's context-dependent moderation highlights the need for spatially tailored policies. The total results can be seen in Table 11.

**Table 11. The hypotheses test results**

| Hypothesis | Content | Test Result |
|---|---|---|
| H1 | Land transfer positive impact on farmers' happiness. | Support |
| H2 | Land transfer positive impact household income. | Support |
| H3 | Land transfer positive impact social equity. | Support |
| H4 | Household income impacts farmers' happiness. | Support |
| H5 | Social equity impacts farmers' happiness. | Support |
| H6 | Land transfer affects farmers' happiness through household income, and household income plays a mediating effect between land transfer and farmers' happiness. | Support |
| H7 | Land transfer affects farmers' happiness through social equity, and social equity plays a mediating effect between land transfer and farmers' happiness. | Support |
| H8 | Social capital plays a moderating effect in the impact of land transfer on household income. | Not support |
| H9 | Social capital plays a moderating effect in land transfer affecting social equity. | Support |

However, this study's cross-sectional design limits its ability to establish temporal precedence and detect dynamic changes in happiness over time. While SEM provides static insights into mediating and moderating relationships, longitudinal data would reveal whether land transfer's effects on farmer happiness persist or diminish as farmers adapt to new economic structures. This is a nuance lost in cross-sectional analysis. As participants were recruited through government partnerships and online platforms, this study's findings may not apply to farmers in regions with weaker institutional support or lower digital literacy.

## 5- Conclusions and Policy Implications

### *5-1- Conclusions*

Agriculture is of paramount importance to China's national economy and social advancement, as it is a significant agricultural nation. This study investigates the influence of land transfer on farmers' happiness in Guangxi, China, by analyzing micro-survey data from 431 farmers who are involved in land transfers. The analysis yielded the following primary conclusions:

First and foremost, the transfer of land plays a pivotal role in the happiness of farmers. Despite generally positive levels of happiness among farmers, there are significant individual variations. Given that land is a vital production factor in rural areas, its impact warrants close attention. The findings indicate that increased land transfer positively contributes to farmers' happiness. This study examines land transfer from multiple perspectives. For farmers who depend on land for their livelihood, land transfer represents a rational approach to agricultural modernization within a smallholder economy. By facilitating the integration of land resources through "consensual" actions, land transfer promotes the flow of urban and rural elements, aiding in the overall survival, development, and income enhancement of villages. The primary impact of land transfer on farmers' happiness is evident in improved living security and village development.

However, the positive effects of land transfer are not uniformly distributed. Large-scale land transfers may exacerbate vulnerabilities among marginalized groups, such as elderly farmers and those with limited education, who lack the skills for nonagricultural employment feel intergenerational separation and identity anxiety. Consequently, the government should continue to promote the construction of the rural land transfer market; pay particular attention to improving transfer behavior, scale and period in Guangxi and other ethnic minority areas; and enhance the positive effects of the policy.

Second, farmers' happiness is influenced by both household income and societal equality in a simultaneous manner. This study recognizes that land is a primary determinant of farmers' happiness, affects happiness through considerations of both efficiency and equity, and varies depending on decision-making and management dynamics. While prior research has focused primarily on the individual effects of household income or social equity, this study integrates these factors to evaluate their combined and mediating effects. The findings reveal that both household income and social equity significantly impact farmers' happiness, with social equity playing a particularly critical role. Promoting land transfer is a new way to promote the growth of household income, but it also reflects the collective demand for land rights equity. Although income is still an important factor affecting farmers' happiness, the influence of social equity on it has become increasingly prominent. Therefore, the government should guide modern and large-scale agricultural production, vigorously develop nonagricultural industries, create a fair social environment, encourage farmers to actively participate in land transfer, promote an increase in household income and narrow the gap between urban and rural areas through land transfer.

Finally, social capital assumes different functions as a moderator. On the one hand, the effect of land transfer on household income does not depend on the level of social capital. Although social capital plays an important social and economic role in rural communities, agricultural management or entrepreneurship and employment are highly dependent on agricultural resources such as land and agricultural machinery facilities, and social capital is not a necessary condition. On the other hand, the greater the social capital of farmers is, the stronger the impact of land transfer on social equity. The widening of social networks can lead farmers to break inherent thinking and eliminate the "Land-related Emotional Bond". Social trust has a decisive effect on efficiency and equity, but acquaintance trust has a negative effect on social equity, whereas participating units and associations have a positive effect on social equity. In the process of increasing the objective social and economic status of farmers, the marginal effect on land transfer behavior is "first positive and then negative", and social isolation reduces their happiness. Consequently, when adjusting the rural economic and social structure, the government should not only improve the distribution system of land and other production factors but also pay attention to the role of social networks, trust and participation in changing thinking, information exchange and investment and financing channels, and increase policy support, such as education and social environment construction, to prevent the social isolation and loneliness of farmers.

### *5-2- Policy Implications*

The results confirm that land transfer increases farmer happiness in Guangxi. On the basis of our research, we can offer the following recommendations:

First, land transfer should continue to be promoted, and supportive policies should be improved to maximize its benefits for farmers' happiness. On the one hand, we should deepen the reform of the rural land system and consolidate the achievements of determining the rights to agricultural land. Financial incentives should be provided, mechanisms for farmers to participate in decision-making should be established, and equity factors should be considered to ensure that policies are inclusive of the needs of different groups and avoid unequal resource distribution. On the other hand, we should cultivate intermediary organizations and realize centralized management. We will increase the government's policy support for land transfer market service intermediaries. In addition, the transfer contract is standardized, and the transfer period is stabilized.

Second, to encourage farmers to develop diversified income sources, providing multiple support mechanisms is crucial. On the one hand, the implementation of agricultural support programs, demonstration projects and other ways to encourage the development of moderate-scale operations can provide loans, funds and technical support for farmers participating in land transfer. We will promote the integration of primary, secondary and tertiary industries in rural areas, promote the development of modern agriculture with the help of the internet, and promote the connection between the production and marketing of agricultural products with rural e-commerce and logistics express delivery. On the other hand, we will vigorously carry out vocational and technical training for farmers to provide guarantees for them to choose different occupations. In addition, we will strengthen the cultivation of new types of agricultural business entities, vigorously develop the service industry, and promote the effective transfer of farmers to nonagricultural work.

Third, we will build an equitable social environment and strengthen the rural social security system. On the one hand, improving the land registration security system and clearly defining the scope of farmers' land rights and interests are essential. Establishing a fair and open platform for land transfer and trading, as well as a platform for farmers to exchange information, is crucial. On the other hand, to foster cooperation and resource sharing among villages and communities,

we should implement innovative measures such as the rule of law, the rule of virtue, and local autonomy. This will alleviate the feelings of powerlessness, futility, and alienation that rural residents experience. Furthermore, it is imperative to enhance the development of social security systems in both urban and rural areas, which encompass old-age care, medical care, education, disability support, and unemployment benefits, to guarantee the equality of access to fundamental public services.

Fourth, we can enhance social capital and facilitate the effective flow of resource information. Government initiatives and the involvement of social organizations should actively promote and help farmers form cooperatives and establish rural mutual aid networks within their communities. Moreover, it is crucial to cultivate a rural community setting that is characterized by a high level of trust. By building harmonious rural communities, farmers can be encouraged to participate in community affairs, thereby expanding their social networks and trust circles. In addition, the outsourcing of agricultural production services during land transfer processes can encourage specialization and distribution within the agricultural sector, enhance the connection between social capital and household income, and reduce the fragmentation of social interactions.

### *5-3- Possible Contributions to Knowledge*

The following aspects are the primary reflections of the contributions of this paper. First, it employs a dual perspective of social equity theory and social capital theory to conduct empirical research on land transfer and farmers' happiness. This highlights the often-overlooked aspect of social equity in land transfer decision-making and its impact on farmers' happiness.

Second, this paper introduces variables such as household income, social equity and social capital to reveal and test the mediating role of household income and social equity in the influence of land transfer on farmers' happiness, clarifies the influence of social capital in moderating land transfer on household income and social equity, realizes the explicit expression of social equity, and provides a new perspective and evidence.

Finally, the data used in this study are from 431 farmers in Guangxi, China, and provide evidence-based policy recommendations for local governments and relevant departments to formulate and optimize land transfer policies and improve farmers' happiness. It has enriched the specific cases of the relationship between land transfer and farmers' happiness, provided theoretical support and practical cases for the implementation of rural revitalization strategies, and helped the overall development of the rural economy and society.

### *5-4- Limitations and Further Research*

The convenience sampling method limits extrapolation to all Chinese farmers. The findings best reflect ethnic minority areas with medium development levels (e.g., Guangxi, Yunnan), where kinship networks dominate land transfers—distinct from eastern China's market-driven models. This study fills a critical gap in ethnic rural research. Although we have considered several variables in the model to explain the impact of land transfer on farmers' happiness, we sampled from different regions in Guangxi but did not conduct in-depth analyses to explore how regional factors interact with the variables in the study, and described some basic demographic characteristics but did not incorporate them into the model. There may still be some important variables that have not been considered, such as individual characteristics such as age, health status, and type of farmer, or psychological factors such as attitudes toward land transfer and future expectations. Happiness may also be affected by factors such as region, culture and values, and this study may not analyze the differences between different regions in Guangxi. The research has focused mainly on the impact of land transfer on farmers' happiness in the short term but has failed to fully consider the potential long-term effects.

Although this study has shown the impact of land transfer on farmers' happiness, its constraints emphasize the importance of exercising caution when the findings are interpreted. To improve the comprehensiveness and applicability of the findings, future studies should consider the inclusion of supplementary variables (more in-depth regional analyses, demographic variables), utilize more specific geographical segmentation, and investigate potential long-term consequences across longitudinal mixed-methods designs (track happiness trajectories, identify adaptation mechanisms, assess policy durability).

## 6- Declarations

### *6-1- Author Contributions*

Conceptualization, W.Z. and S.N.; methodology, W.Z.; software, W.L.; validation, S.N., W.Z., and W.L.; formal analysis, W.Z.; investigation, W.Z.; resources, S.N.; data curation, Q.Z.; writing—original draft preparation, W.Z.; writing—review and editing, S.N.; visualization, W.Z.; supervision, S.N.; project administration, Q.Z. All authors have read and agreed to the published version of the manuscript.

### *6-2- Data Availability Statement*

The data presented in this study are available on request from the corresponding author.

### *6-3- Funding*

The authors received no financial support for the research, authorship, and/or publication of this article.

### *6-4- Institutional Review Board Statement*

Not applicable.

### *6-5- Informed Consent Statement*

Not applicable.

### *6-6- Conflicts of Interest*

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

## 7- References

[1] Mullan, K., Grosjean, P., & Kontoleon, A. (2011). Land tenure arrangements and rural-urban migration in China. World Development, 39(1), 123–133. doi:10.1016/j.worlddev.2010.08.009.

[2] Rogers, S., Wilmsen, B., Han, X., Wang, Z. J. H., Duan, Y., He, J., Li, J., Lin, W., & Wong, C. (2021). Scaling up agriculture? The dynamics of land transfer in inland China. World Development, 146, 105563. doi:10.1016/j.worlddev.2021.105563.

[3] Sun, P., & Cao, H. (2024). Tourism Development and Rural Land Transfer-Out: Evidence from China Family Panel Studies. Land, 13(4), 2–16. doi:10.3390/land13040426.

[4] Cheng, C., & Zheng, J. L. (2022). How does land transfer promote farmers' income? — An empirical analysis based on CHFS. Jiangsu Agricultural Sciences, 24, 220–227. doi:10.15889/j.issn.1002-1302.2022.24.033.

[5] Wang, P., & Wang, F. (2022). A study of the impact of land transfer decisions on household income in rural China. PLoS ONE, 17(10), 276559. doi:10.1371/journal.pone.0276559.

[6] Shang, M. Y., & Li, J. (2022). The Impact of Rural Homestead System on Farmers' Subjective Sense of Gain, Well-being, and Security. Journal of Northwest A&F University (Social Science Edition, 22(4), 1–12. doi:10.13968/j.cnki.1009-9107.2022.04.08.

[7] Luo, M. Z., Chen, X. J., & Wei, B. H. (2023). The impact of rural collective economic development on farmers' happiness. Research of Agricultural Modernization, 03, 398–409. doi:10.13872/j.1000-0275.2023.0036. (In Chinese).

[8] Easterlin, R. A., McVey, L. A., Switek, M., Sawangfa, O., & Zweig, J. S. (2010). The happiness - Income paradox revisited. Proceedings of the National Academy of Sciences of the United States of America, 107(52), 22463–22468. doi:10.1073/pnas.1015962107.

[9] Liu, J., Fang, Y., Wang, G., Liu, B., & Wang, R. (2023). The aging of farmers and its challenges for labor-intensive agriculture in China: A perspective on farmland transfer plans for farmers' retirement. Journal of Rural Studies, 100, 103013. doi:10.1016/j.jrurstud.2023.103013.

[10] Pratomo, D. S., Ningsih, D. N. C., Fahadayna, A. C., Arisetyawan, K., Al Ayyubi, M. S., Natalia, C., … Prastiwi, L. F. (2024). Analyzing the Factors Influencing Green Job Participation and Income Effects Using National Labor Force Data. Journal of Human, Earth, and Future, 5(3), 513–527. doi:10.28991/HEF-2024-05-03-014.

[11] Liu, Y., Li, X., & Guo, Y. (2024). Exploring land system reform for demographic transition in rural China. Land Use Policy, 147, 107355. doi:10.1016/j.landusepol.2024.107355.

[12] Chen, Y., Qin, Y., & Zhu, Q. (2023). Study on the Impact of Social Capital on Agricultural Land Transfer Decision: Based on 1017 Questionnaires in Hubei Province. Land, 12(4), 861. doi:10.3390/land12040861.

[13] Waterman, A. S. (1993). Two Conceptions of Happiness: Contrasts of Personal Expressiveness (Eudaimonia) and Hedonic Enjoyment. Journal of Personality and Social Psychology, 64(4), 678–691. doi:10.1037/0022-3514.64.4.678.

[14] Xing, Z. J. (2002). Review of research on Subjective well-being measurement. Psychological Science, 3, 336-338.

[15] Wang, H., Cheng, P., Liang, P., Liu, K., & Nie, X. (2020). Invisible windfalls and wipeouts: What is the impact of spatial regulation on the welfare of land-lost farmers? Habitat International, 99, 1–11. doi:10.1016/j.habitatint.2020.102159.

[16] Li, J., Ma, W., & Gong, B. (2023). Market participation and subjective well-being of maize farmers. Economic Analysis and Policy, 80, 941–960. doi:10.1016/j.eap.2023.09.037.

[17] Pettinger, T. (2018). Diminishing marginal utility of income and wealth. Economics Help. Available online: https://www.economicshelp.org/blog/12309/concepts/diminishing-marginal-utility-of-income-and-wealth/ (accessed on June 2025).

[18] Pouwels, B., Siegers, J., & Vlasblom, J. D. (2008). Income, working hours, and happiness. Economics Letters, 99(1), 72–74. doi:10.1016/j.econlet.2007.05.032.

[19] Xiang, W., & Gao, J. (2023). From Agricultural Green Production to Farmers' Happiness: A Case Study of Kiwi Growers in China. International Journal of Environmental Research and Public Health, 20(4), 2856. doi:10.3390/ijerph20042856.

[20] Burnett, S. (2011). The happiness agenda: A modern obsession. Palgrave Macmillan, London, United Kingdom. doi:10.1057/9780230348417.

[21] Nie, X. (2011). Research on Influencing factors and measurement of multi-dimensional welfare of landless peasants in the process of urban land transfer. Ph.D. Thesis, Huazhong Agricultural University, Wuhan, China.

[22] Chen, L., Chen, H., Zou, C., & Liu, Y. (2021). The impact of farmland transfer on rural households' income structure in the context of household differentiation: A case study of Heilongjiang Province, China. Land, 10(4). doi:10.3390/land10040362.

[23] Geng, N., Gao, Z., Sun, C., & Wang, M. (2021). How do farmland rental markets affect farmers' income? Evidence from a matched renting-in and renting-out household survey in Northeast China. PLoS ONE, 16(9). doi:10.1371/journal.pone.0256590.

[24] Yan, J., Wang, F., & Yuan, W. (2018.). Land Transfer, Moderately Scaled Operation, and Agricultural Production Efficiency. Resource Development & Market, 34(7), 947–955.

[25] Hu, G., Wang, J., Fahad, S., & Li, J. (2023). Influencing factors of farmers' land transfer, subjective well-being, and participation in agri-environment schemes in environmentally fragile areas of China. Environmental Science and Pollution Research, 30(2), 4448–4461. doi:10.1007/s11356-022-22537-4.

[26] Ke, L., Cheng, S., Chen, D., & Li, Y. (2023). Why Is the Income Effect of Farmland Transfer Inconsistent between Transferred-Out and Transferred-In Households?. Sustainability, 15(9), 7379. doi:10.3390/su15097379.

[27] Stead, H., & Bibby, P. A. (2017). Personality, fear of missing out and problematic internet use and their relationship to subjective well-being. Computers in Human Behavior, 76, 534–540. doi:10.1016/j.chb.2017.08.016.

[28] Patil, V., Ghosh, R., Kathuria, V., & Farrell, K. N. (2020). Money, Land or self-employment? Understanding preference heterogeneity in landowners' choices for compensation under land acquisition in India. Land Use Policy, 97, 104802. doi:10.1016/j.landusepol.2020.104802.

[29] Alobo Loison, S. (2019). Household livelihood diversification and gender: Panel evidence from rural Kenya. Journal of Rural Studies, 69(C), 156–172. doi:10.1016/j.jrurstud.2019.03.001.

[30] Moris, M. (2021). Belonging from the margin: The changing village and its others. Journal of Rural Studies, 87, 474–481. doi:10.1016/j.jrurstud.2020.03.005.

[31] Zu, Q. (2018). The impact of income and democracy on rural residents' happiness: Based on an empirical study of 1987 samples in Zhejiang and Sichuan provinces. Enterprise Science and Technology Development, 2, 256–258.

[32] Deng, M. (2019). Social relationships, mental health levels and subjective well-being improvement among older adults—an empirical analysis based on CGSS2015 data. Population and Development, 25(03), 85-93.

[33] Sun, D. P., Sun, Z. Y., Yu, B. G., & Li, Y. (2022). Does Non-Agricultural Employment Improve Rural Residents' Happiness? South China Journal of Economics, 41(03), 17–36. doi:10.19592/j.cnki.scje.390776. (In Chinese).

[34] Liu, L., Wang, T., Xie, L., & Zhan, X. (2020). Influencing Factors Analysis on Land-Lost Farmers' Happiness Based on the Rough DEMATEL Method. Discrete Dynamics in Nature and Society, 2020, 1–10. doi:10.1155/2020/6439476.

[35] Markussen, T., Fibæk, M., Tarp, F., & Tuan, N. D. A. (2018). The Happy Farmer: Self-Employment and Subjective Well-Being in Rural Vietnam. Journal of Happiness Studies, 19(6), 1613–1636. doi:10.1007/s10902-017-9858-x.

[36] Chen, H., & Wang, J. (2016). Can Social Capital Promote Land Transfer? Research-based on Chinese family tracking survey. Journal of Zhongnan University of Economics and Law, 01, 21–29.

[37] Xu, J., Huang, J., Zhang, Z., & Gu, X. (2021). The impact of family capital on farmers' participation in farmland transfer: Evidence from rural China. Land, 10(12). doi:10.3390/land10121351.

[38] Zhang, X., Xie, J. Z. & Zhang, M. (2015). Working Experience, Social Capital and the Performance of Farmers' Start-up Enterprises. Soft Science, (04), 140-144. doi:10.13956/j.ss.1001-8409.2015.04.30.

[39] Deininger, K., Ali, D. A., & Alemu, T. (2011). Impacts of land certification on tenure security, investment, and land market participation: Evidence from Ethiopia. Land Economics, 87(2), 312–334. doi:10.3368/le.87.2.312.

[40] Putnam, R. D., Leonardi, R., & Nanetti, R. Y. (1993). Making Democracy Work: Civic Traditions in Modern Italy. Princeton University Press, Princeton, United States. doi:10.2307/2620793.

[41] Wegener, B. (1991). Job Mobility and Social Ties: Social Resources, Prior Job, and Status Attainment. American Sociological Review, 56(1), 60. doi:10.2307/2095673.

[42] Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models: An evaluation of power, bias, and solution propriety. Educational and psychological measurement, 73(6), 913-934. doi:10.1177/0013164413495237.

[43] Yamane, T. (1973) Statistics: An Introductory Analysis (3rd Ed.). Harper and Row, New York, United States.

[44] Han, Y. (2022). The impact of interpersonal Trust on well-being of Li Ethnic adolescents: The Chain mediating role of ethnic identity and perceived Social Justice. Master Thesis, Hunan Normal University, Changsha, China.

[45] Fei, R., Lin, Z., & Chunga, J. (2021). How land transfer affects agricultural land use efficiency: Evidence from China's agricultural sector. Land Use Policy, 103. doi:10.1016/j.landusepol.2021.105300.

[46] Sardeshmukh, S. R., & Vandenberg, R. J. (2017). Integrating Moderation and Mediation: A Structural Equation Modeling Approach. Organizational Research Methods, 20(4), 721–745. doi:10.1177/1094428115621609.

[47] Nunnally, J. & Bernstein, I. (1978) Psychometric Theory. Tata McGraw-Hill Ed., New Delhi, India.

[48] air, J., Hult, T., Ringle, C., & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Sage Publications, Thousand Oaks, United States.

[49] Kline, R. B. (2023). Principles and practice of structural equation modeling. Guilford publications, New York, United States.

[50] Kumar, P., Kumar, P., & Garg, R. K. (2021). A study on farmers' satisfaction and happiness after the land sale for urban expansion in India. Land Use Policy, 109, 105603. doi:10.1016/j.landusepol.2021.105603.

[51] Wijayanto, H. W., Lo, K. A., Toiba, H., & Rahman, M. S. (2022). Does Agroforestry Adoption Affect Subjective Well-Being? Empirical Evidence from Smallholder Farmers in East Java, Indonesia. Sustainability (Switzerland), 14(16), 10382. doi:10.3390/su141610382.

[52] Wang, D., Qian, W., & Guo, X. (2019). Gains and losses: Does farmland acquisition harm farmers' welfare? Land Use Policy, 86, 78–90. doi:10.1016/j.landusepol.2019.04.037.