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Does Land Lease Affect the Multidimensional Poverty Alleviation? The Evidence from Jiangxi, China

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Abstract: This study uses field survey data from 382 families in the year 2020 in Jiangxi province, China, to explore the effects of land lease and labor migration, a well-known occurrence in China, on rural households' multidimensional poverty status. We used the A-F method to measure the household's multidimensional poverty in terms of health, education, income, living standard, and social relations. The Bootstrap Test approach, which worked well with our data, was used to build our mediating effect models while taking into account the influence mechanisms of land leasing and multidimensional poverty. According to our findings, 76.70% of sample homes experience multidimensional poverty at the threshold of 0.33. The reduction of multidimensional poverty is significantly aided by both leasing in and leasing out land. Land lease out and land lease in, however, have asymmetrical effects on multidimensional poverty alleviation, with the proportion of land lease out being 1.147 without control variables and the proportion of land lease in being 0.969 without control variables. Land lease in and lease out have positive effects on the multifaceted alleviation of poverty due to the mediating effect of labor migration. For policymakers to develop and put into action more relevant policies to help multidimensional poverty alleviation, our analysis offers critical insights.

Keywords: land lease; labor migration mediation effect; multidimensional poverty alleviation

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Citation: Xiao, H.; Liang, X.; Xing, S.; Huang, L.; Xie, F. Does Land Lease Affect the Multidimensional Poverty Alleviation? The Evidence from Jiangxi, China. *Land* **2023**, *12*, 942. https://doi.org/10.3390/land12050942

Academic Editor: Hossein Azadi

Received: 6 March 2023
Revised: 14 April 2023
Accepted: 21 April 2023
Published: 23 April 2023

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1. Introduction

Since the start of the reform and opening-up policy, China has made it a priority to end poverty. In 2020, China achieved total success in its struggle against absolute poverty. The standard for absolute poverty households in China to escape poverty in 2020 is to have an annual income of about CNY 4000 and to achieve no worries about food and clothing, with basic medical care, compulsory education, and housing security guaranteed. Absolute poverty, also known as subsistence poverty, refers to the inability of individuals and families to maintain their basic needs for survival by relying on their labor income and other legitimate income under certain social production and lifestyle patterns. After that, China's priority for eradicating absolute poverty was changed to eradicating multidimensional poverty [1]. President Xi advocated, "We will consolidate and expand our achievements in poverty alleviation and help areas and people that have just shaken off poverty build their own momentum for growth" at the 20th National Congress of the Communist Party of China, the highest organ of state in China. This paper investigates this topic using data from Jiangxi Province in China since it is vital to conduct related research on reducing multidimensional poverty in light of the aforementioned content. Following Peter Townsend's relative poverty theory and Amartya Sen's concept of

"capability poverty", many academics are now focusing on economic inequality and social hardship and studying poverty from a multidimensional perspective [2].

The two phases of the poverty study are absolute poverty and relative poverty. Absolute poverty can be categorized into two categories: Rowntree's "subsistence" [3] and the International Labor Organization's (ILO) "basic necessities" at the 1976 World Employment Conference, which are both utilized by the World Bank to establish international poverty criteria. Since American economist Fuchs [4] first defined relative poverty and used it as a criterion, the idea that poverty is relatively gained from widespread acceptance as the gap between the rich and the poor widened. According to further research, the definition of the poverty line in various EU nations [5] has been adjusted to account for disparities in geography [6], urban–rural inequalities [7], subjectivity, and objectivity. The Human Development Report of the United Nations Development Programme (UNDP) published the Human Development Index (HDI) in 1990, which, for the first time, defined and quantified poverty from a human development perspective based on Amartya Sen's concept of "capability poverty". The Multidimensional Poverty Index (MPI), which measures poverty primarily in terms of health, education, and living standards, was published for the first time in 2010 by the UNDP Human Development Report based on Alkire–Foster's multidimensional poverty measurement. According to data from the UNDP's 2022 Global Multidimensional Poverty Index (MPI), 1.2 billion people continue to live in extreme multidimensional poverty in 111 developing nations. About twice the individuals at the international poverty level [8] live in multidimensional poverty.

Many studies have been conducted on the measuring and performance traits of multidimensional poverty, with a particular emphasis on the following elements. The first includes creating dimensions and indicators. For instance, income, ability, rights, social and cultural factors, vulnerability, and risk are some construct identification criteria [9]. Second, there are two levels at which the multidimensional poverty measurement methods can be assembled. The first is the static measuring method, which is mostly utilized for the cross-sectional analysis of multidimensional poverty. The Watts multidimensional poverty index and Alkire and Foster's "two-line method" [10] are examples of common measurements. The second is a method of measuring poverty dynamically. Foster [11] suggested the Duration Approach, which adds time to the A-F method. The MPI index method [12] and the human development index method are examples of common measurement techniques. In order to set the weights for poverty measurements, some researchers have also employed equal weight assignment [13], principal component analysis [14], the general linear model approach [15], and the BP neural network method [16]. The application of multidimensional poverty is the third. The research scale changed for various locations, moving from medium and large dimensions such as national and provincial areas to micro scales, including administrative villages and houses [17–20].

Land lease is intimately tied to the living standards of rural households since, as we all know, land is the primary source of income for rural households. Land leasing is now having a significant impact on lowering rural household poverty [21–23]. According to many academics, the influence of land leasing on reducing poverty is represented in changes in income [21,24], including changes in agricultural operating income, per-person rental land income, and per-person employment income [25,26]. Some academics concluded that land leases and land property rights were efficient means of reducing long-term poverty [21,25,27]. While this was going on, land leasing had an impact on nonproductive income, which, in turn, may help to further reduce poverty [21,28]. However, because of the complexity and breadth of poverty, using money as the sole indicator is overly simplistic and does not accurately portray it. Since then, academics have started using a holistic, integrated approach to looking at poverty indicators.

Additionally, there are differences between the effects of land leasing on lease-in and lease-out households, and heterogeneity is impacted by all of the government's "three subsidies" for farms and the off-farm work population. In addition to receiving property income, such as farmland lease rent, rural households that have leased out their farmland

also have more surplus labor available to migrate outside and earn more wage income. In addition, the contribution of off-farm employment income and farmland rent income after leasing out their farmland has some stability and continuity compared to farm business income. Farmers who lease farmland can still maintain some labor migration to earn wage income. In addition, as the size of land operations and the level of agricultural mechanization are increased, the productivity of agricultural laborers is significantly improved, which raises the income of their household's agricultural business [29]. Land leasing and labor migration have a strong beneficial relationship that is correlated with multidimensional poverty and can raise the income and standard of living for rural households [30].

According to previous research, the impact of farmland leasing direction on labor migration varies [31]. Based on the results of the previous research, labor migration helps to reduce the prevalence of poverty. The income from off-employment can directly lower rural households' poverty levels in terms of standard of living [32]. The father's employment outside the home can greatly support the children's continued education and raise the family's educational poverty status in the education dimension [33]. However, on the health dimension, children who are left behind are more likely to be ill, overweight, and shorter than children whose parents do not work outside the home [34], and working outside the home also has a detrimental effect on the health of older people who are left behind [35]. However, the prevalence of poverty and income disparity also rises as a result of rural labor migration, and households at the lower level of income distribution frequently suffer as a result of population migration [36]. The rural labor migration may also result in family members being split up, more children and elderly being left behind, serious hollowing out, and escalating health, medical, and educational issues, all of which exacerbate rural areas' multifaceted poverty [37,38]. Some academics have also argued that there is no connection between poverty and labor migration. Notably, the type of motivation for migration [39], the timing and location of migration [40], the level of human and social capital of the migrant population [41], the rural labor surplus, and the scale of mobility [42] all affect how much rural labor migration helps to alleviate poverty.

Farmland plays a prominent role in China's efforts to reduce poverty as a vital source of livelihood, particularly for rural communities. The efficiency of farmland leasing for poverty alleviation in underdeveloped areas has decreased due to China's flawed agricultural lease process and the lagging concept of farmland lease for eradication [43]. It is crucial to investigate the mechanism of land leases to get out of poverty in light of the aforementioned existing literature and historical context. Notably, according to our study on significant studies carried out both domestically and internationally, the following topics are still unsolved in current studies: (1) Academics still have unanswered questions regarding the direction of farmland leasing's effects on labor migration and its impact on reducing poverty. This study experimentally examines the effect of the land lease on decreasing poverty and supports the significance of migration of labor using data from rural China. (2) Researchers have not yet standardized the measurement of multidimensional poverty indicators. This work proposes a multidimensional poverty indicator measuring system employing five dimensions: education, health, living standard, income, and social relation, in order to support the multidimensional poverty theory in various ways. (3) Out-of-poverty households are the most significant of the categories that are vulnerable to poverty. Due to the long-term nature of poverty, the risk of out-of-poverty households relapsing into poverty due to illness, the risk of out-of-poverty households relapsing into poverty owing to social integration and employment, and the multidimensional poverty of out-of-poverty households should be the main concern. In light of the previous study, we create a multidimensional poverty index and examine the effects of the land lease on rural households through intermediary variable labor migration using data on out-of-poverty rural households collected in 2020 from the field research in Jiangxi Province's impoverished districts. To address the issue of rural households' multidimensional poverty, this research can assist elucidate the connection between a land lease and their relative multidimensional

poverty. Thus, there are major theoretical and practical ramifications for our research on land leases and multidimensional poverty.

2. Theoretical Analysis and Research Hypotheses

2.1. The Role of Land Lease in Alleviating Multidimensional Poverty

Land leasing is a method of redistributing land that could assist in reducing multifaceted poverty. The income benefits of land leases were, therefore, large for both leased-in and leased-out households, according to numerous academics.

When measuring multidimensional poverty, education is a key factor. Land leasing might encourage rural people to invest in education, boosting employability and reducing multifaceted poverty. The land lease enables laborers to transition into the urban workforce, acquire more modern ideologies, and place a higher priority on the education of the next generation. This increases education spending, builds up and enhances the family's human capital, and fundamentally reduces family poverty. The labor freed up by farmland leasing, in the meantime, "learn by doing" in other jobs and accumulates a variety of skills and knowledge, and the knowledge spillover improves the ability of the poor, enabling them to better engage in agricultural or off-farm work and thereby escape poverty. It takes more time for this poverty-removal effect to build up before it becomes noticeable.

Numerous studies have demonstrated that health has a significant role in determining how poor a household is. Farmland lease households may adopt mechanized means of labor because of the increase in farmland, reducing pure physical labor and thereby improving their health level. The land lease-out causes the labor to shift to other jobs, and the labor will tend to increase health inputs to maintain their health level in order to ensure the labor needs of normal work [44]. By lowering Engel's coefficient and easing housing shortages, farmland leasing lowers multidimensional poverty in the living standard dimension [45].

Based on the above discussion, Hypothesis 1 and Hypothesis 2 are proposed:

Hypothesis 1. *Land lease, including both land lease in and lease out, has a prominent contribution to alleviating multidimensional poverty.*

Hypothesis 2. *The farmland lease in and farmland lease out of multidimensional poverty alleviation effects are asymmetrical.*

2.2. Mediating Effect of Labor Migration

There are two different forms of land leases: land lease in and land lease out. To a certain extent, the land lease is a remedy for the shortcomings of family joint production responsibility. Farmland leases could help to promote the labor resources migration in the rural household's redistribution. According to the analytical framework of land lease and labor migration, land lease improves the reallocation efficiency of land resources through the economy of scale effect, transaction gain effect, and marginal output leveling effect [26]. On the one hand, lease-in rural households may form moderate-scale operations and obtain moderate-scale operation income of farmland and reduce unit cost [46,47], and lease-out parties may have surplus rural labor and put into other work to earn income [48]. On the other hand, it could improve the efficiency of land use and agricultural production, promote the use of agricultural mechanization and new technologies, and save the input of rural labor. Thus, the land lease can alleviate multidimensional poverty in the income dimension and provides a basis for surplus labor migration.

Most rural laborers choose to migrate to gain more income in consideration of the cost–benefit trade off. In order to adapt to new jobs, most rural laborers need to learn new skills and competencies on their own and maintain their health to meet the needs of the job in the urban area. Studies have shown that the experience of migration promotes the development of the rural labor force's capabilities, as reflected in the expansion of employment options, the increase in agricultural productivity, and the growth of the ability to acquire new technologies after the return of labor [49]. Although labor migration can

improve the economic situation of households in the short term, it is not a fundamental and effective way for rural households to completely alleviate their poverty status in the long term. Land leasing creates opportunities for farmers to acquire, absorb, and share knowledge; meanwhile, many farmers who migrate recognize the importance of education and may increase their investment in the education of the next generation in the long term. The Engel coefficient is reduced, and the farmers' standard of living is improved by both income from labor and income from the land lease.

When measuring multidimensional poverty, most studies choose the dimensions of income, education, health, and living standards. Farmland lease households can derive income from moderate-sized farming while also receiving income from farmland rent and income from work outside the home. The exchange platform that land leasing provides can improve the knowledge and skills of migrant workers in the short run, and it can increase the educational expenditure of the household, as well as the expenditure on health care in the long run. Farmland leasing reduces multidimensional poverty in the standard of living dimension by reducing Engel's coefficient and alleviating housing congestion, as leasing may increase health inputs to sustain work, and leasing households may tend to adopt mechanism means of labor and reduce pure manual labor. Therefore, according to the analysis, labor migration brought by farmland leases can alleviate multidimensional poverty in the above aspects, which is also in line with the path of income effect and ability effect summarized. In the above analysis, we can include the impact of farmland leases on multidimensional poverty.

On the basis of this, we draw the diagram of the mechanism of influence in Figure 1 and propose Hypothesis 3:

Hypothesis 3. *Labor migration has a positive contribution to multidimensional poverty alleviation by land lease; that is, land lease is conducive to promoting effective rural labor migration and thus the household multidimensional poverty alleviation.*

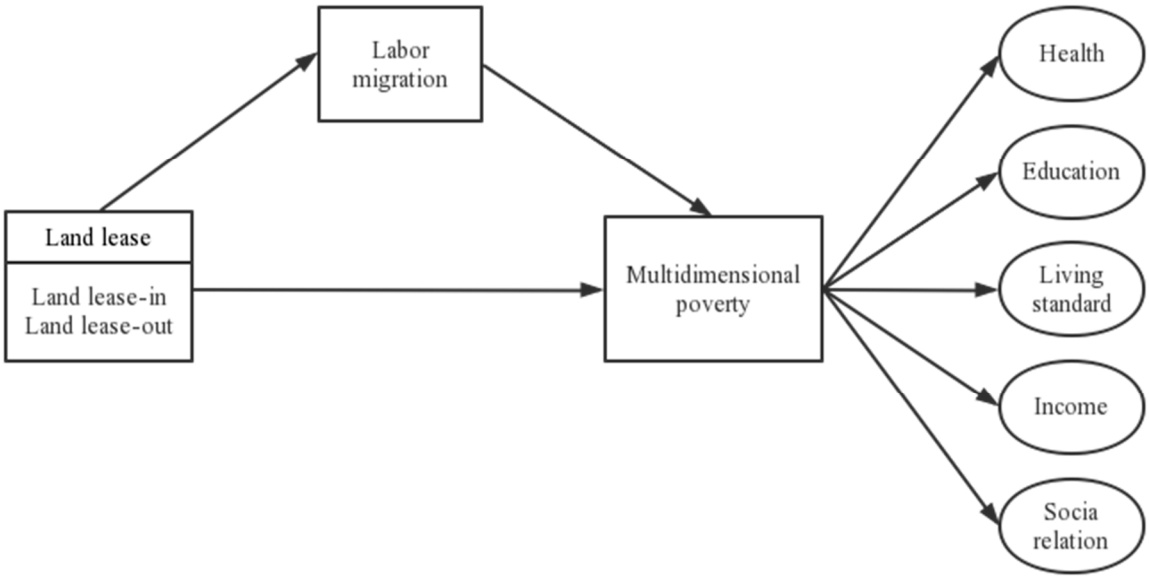

Figure 1. Multidimensional poverty alleviation mechanism of land lease.

3. Model Construction and Empirical Analysis

3.1. Multidimensional Poverty Index Measurement

Since multidimensional poverty was proposed, many scholars have carried out a series of studies on the measurement of multidimensional poverty and constructed a variety of poverty measurement methods. According to the dimension, it can be divided into single-dimension and multi-dimension measurements, and corresponding measurement methods

are selected based on practical application. Since we make the research of multidimensional poverty as the starting point, multidimensional poverty method of Alkire–Foster (A-F) model is selected to measure the poverty index. A-F is also known as the double critical value method. In this paper, a total of 10 indicators from 5 dimensions were selected by referring to the index setting of MPI and combining them with the actual situation: the Two Assurances and Three Guarantees refer to assurances of adequate food and clothing and guarantees of access to compulsory education, basic medical services, and safe housing for impoverished rural residents. The following is the identification and calculation method of multidimensional poverty.

Multidimensional poverty identification. Each index of the observed sample is given a certain weight w_j, and the total deprivation state of family i in p indexes is $C_i(k)$, $C_i(k) = \sum_{j=1}^{p} w_j \times g_{ij}$.

When k = 0.3, k represents the critical value of total deprivation because $\sum_{j=1}^{p} w_j = 1$, so the value range of k is [0, 1], that is, $C_i \geq k$, and at that time, family is poor and assigned a value of 1; otherwise, family is identified as non-poor and assigned a value of 0. The value of k is adjusted according to the actual situation, and 10 indicators of MPI are selected. In this paper, 10 indicators are selected. In order to improve accuracy and scientificity, the poverty index above 33% is identified as multidimensional poor families.

Multidimensional poverty index calculation. The multidimensional poverty index (M) is the product of the poverty incidence rate and the average share of deprivation. The number of multidimensional poor families and the total deprivation status can be obtained from the above, and the poverty incidence rate (H) can be calculated, where H is the ratio of the number of multidimensional poor families (q) to the total sample number of observed families (n), $H = q/n$. The average share of deprivation is the ratio of the sum of deprivation values of multi-dimensional poor families to the number of samples of multi-dimensional poor families, i.e., $A = \frac{1}{q}\sum_{i=1}^{n} C_i(k)$, then it is concluded that $M = H \text{@} A = \frac{1}{n}\sum_{i=1}^{n} C_i(k)$.

Dimensional decomposition. The multidimensional poverty index can be decomposed based on urban and rural areas, regions, dimensions, etc. The specific definition of decomposition varies slightly according to the actual situation of the problem studied. In this paper, the poverty degree of different indicators and their contribution rate to the multidimensional poverty index is observed: $C_j = \frac{\frac{1}{n}\sum_{j-1}^{n} W_j \times g_{ij}}{\frac{1}{n}\sum_{j-1}^{p} W_j \times g_{ij}}$.

3.2. Dimension and Index Selection of Multidimensional Poverty Index

The poverty dimension considers the width of poverty and reflects a deeper understanding and recognition of poverty in addition to the consideration of absolute income poverty. When using AF method to measure multidimensional poverty, it is necessary to consider different regions, cultural characteristics, and consumption habits and choose appropriate dimensions to measure local poverty. The dimensions and corresponding indexes of multidimensional poverty are not fixed. Considering the importance of monetary indicators to individual welfare, we take into account the existing three dimensions of the MPI index mentioned in OPHI, namely health, education, and living standards. Income index and social relation index are added and separately taken as two dimensions, a total of five dimensions.

The health dimension is adjusted to medical expenses and health insurance, which is mainly due to, first, in rural China, the phenomenon of poverty caused by illness or return to poverty due to illness is very common. Second, in recent years, China has made great efforts to promote medical insurance, and the selection of whether to have medical insurance can reflect the effect of the government on poverty alleviation in terms of setting the critical value of education dimension, on the basis of referring to the development goals of the year before last of the United Nations and combining with the actual situation of nine-year compulsory education in China. Set the threshold for the dimension of education as a member of the family who is 16 years of age or older and has less than 9 years of

education. The income dimension is mainly measured by the index of per capita disposable income of poverty-stricken households. The living standard dimension considers five indicators, including electricity, cooking fuel, floor, assets, and per capita housing area. The social relation dimension is mainly measured by the ease of borrowing money from relatives and friends. Since AF multidimensional poverty measurement method has no sensitive induction to weight, this study measures the multidimensional poverty index by equal weight method. After establishing the weight of each dimension, the weight of each index is equal weight based on the dimension weight. We finally selected 10 indicators from 5 dimensions of education, health, income, living standard and social relations and summarized the adjusted dimensions, indicator variables, deprivation critical value, and weight of each indicator, as shown in Table 1.

Table 1. Dimensions, indicators, cutoffs, and weights of the MPI.

Dimension	Indicator (Relative Weight)	Deprived If...	Cutoffs
Health	Medical expenses (1/8)	Medical expenses incurred by a member of the family suffering from a serious illness or hospitalization	Qualitative indicator: 1 = poor; 0 = non-poor
	Health insurance (1/8)	A member of the family does not have rural health insurance	Qualitative indicator: 1 = poor; 0 = non-poor
Education	Years of education (1/8)	A member of the family who is 16 years of age or older and has less than 9 years of education.	9
Income	Per capita disposable income (1/4)	Household disposable income per capita is less than 40% of the national median disposable income per capita for rural residents in 2019	5755.6
Living Standard	Electricity (1/20)	No electricity in the home	Qualitative indicator: 1 = poor; 0 = non-poor
	Cooking fuel (1/20)	The primary fuel for cooking is unclean	Qualitative indicator: 1 = poor; 0 = non-poor
	Floor (1/20)	The structure is made of mud	Qualitative indicator: 1 = poor; 0 = non-poor
	Assets (1/20)	Households that do not own more than one of the following assets: battery car, car, television, Refrigerator, washing machine, telephone, air conditioner, computer, electric heater, or water heater	Qualitative indicator: 1 = poor; 0 = non-poor
	Per capita housing area (1/20)	Less than 12 square meters are seen as a sign of deprivation in terms of housing area per capita.	12
Social Relation	How easy it is to borrow money from friends and relatives	Borrowing money from friends and family is not necessarily difficult, so it is given a value of 1	Qualitative indicator: 1 = poor; 0 = non-poor

3.3. Model Construction

The independent variable is the proportion of land lease in and the proportion of land lease out, the intermediary variable is the proportion of labor migration, and the dependent variable is the multidimensional poverty index. Since both intermediary variables and dependent variables were values between 0 and 1, OLS linear regression model was used for estimation.

The first step is to establish Model 1 to test the effects of land lease-in ratio and land lease-out ratio on the multidimensional poverty index of rural households; the second step is to establish Model 2 to test the impact of land lease-in ratio and land lease-out ratio on the labor migration ratio of rural households; thirdly, on the basis of the above, Model 3 is established to test the role of labor migration ratio in the impact of land lease-in ratio and land lease-out ratio on multidimensional poverty. Finally, Bootstrap is used to test the mediation effect 1000 times. According to the above analysis, the following measurement model is constructed. The formula of Models 1–3 is as follows:

$$Y_{i,t} = c + \alpha_1 X_{i,t} + \sum Control_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$M_{i,t} = c + \alpha_2 X_{i,t} + \sum Control_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$Y_{i,t} = c + \alpha_3 X_{i,t} + \beta_1 M_{i,t} + \sum Control_{i,t} + \varepsilon_{i,t} \quad (3)$$

Among them, $X_{i,t}$ is the core explanatory variable of this paper, which represents the land lease-in ratio and land lease-out ratio of rural households; the intermediate variable,

represents the ratio of rural households; $Y_{i,t}$ is the explained variable, which indicates the rural households' multidimensional poverty; α indicate the coefficient vector group, and ε indicates the random error term. Next, the robustness of the model was verified. In the econometric analysis, robust standard errors were used to eliminate the influence of heteroscedasticity on the model results. We used Stata16.0 software to fit Equations (1)–(3) and obtained the fitting results of the multidimensional poverty-affecting factor model of rural households.

3.4. Data Sources

Jiangxi Province is a traditional agricultural area in China and also a major grain exporting province. However, it is unbalanced in regional development and is a key region for helping to alleviate poverty. There is a large gap in the level of economic development and the gap between the rich and the poor area within the province. In 2020, Nanchang City's GDP per capita was as high as CNY 100,415, while Shangrao City's was only CNY 36,839. By the end of 2020, China had lifted 3.46 million people out of poverty in Jiangxi Province, but the end of absolute poverty does not mean the end of poverty alleviation. The No. 1 document issued by the Central Committee in 2022 pointed out that the bottom line of preventing poverty on a large scale should be firmly adhered to. Due to the vulnerability of poverty, households lifted out of poverty are still at risk of falling back into poverty due to illness. Therefore, the research on poverty-stricken households will help consolidate the achievements of poverty alleviation and help poverty-stricken households achieve sustainable poverty alleviation, which is significant.

We conducted accurate poverty identification based on the data from the multidimensional poverty survey of rural households in Jiangxi Province. As for the contents of the questionnaire, first of all, based on the personal characteristics, family characteristics, and social characteristics of farmers, the questionnaire is designed according to the 10 indicators of multidimensional poverty measurement, focusing on the economic and non-economic welfare, including education, health, family relationship dynamics, and other research topics, to reflect the changes of society, economy, and population.

From July to August 2020, master's students, doctoral students, and teachers of the research team from Jiangxi Agricultural University sent five investigation teams with four members in each group to Anyi County, Jinxian County, Nanchang County, Wanli District, and Xinjian District in the Nanchang City. The sample rural households were randomly selected and distributed in eight natural villages according to the principle of universality and representativeness. A sample of 10 poverty alleviation households in each natural village was randomly selected for a questionnaire survey. A total of 400 questionnaires were sent out, and 382 valid questionnaires were collected. First-hand survey data refer to research data obtained from field surveys conducted by the subject team in the survey area. We conducted researcher training and pre-research prior to the field research. After we initially designed the research questionnaire, we conducted intensive training for the researcher to learn the content of the questionnaire, interviewing techniques, form-checking techniques, polite language, etc., item by item, and envisaged and discussed possible contingencies. After the intensive training, we selected one of the sample villages in the study area to conduct a pre-study, further discussed and refined the questionnaire and interview outline based on the pre-study, and exchanged research skills. Based on the first-hand survey data obtained, the poverty situation in this region is measured based on Alkire–Foster model, and the main poverty (city), poor village, poor family, and poverty dimension are accurately identified. Meanwhile, the impact of COVID-19 on the livelihoods of rural households was also part of our study, but most farmers' responses were that the impact was not significant. As the sample was limited to Jiangxi and there was a lack of reference samples from other regions, we did not analyze the livelihood impact of COVID-19.

3.5. Variable Selection

3.5.1. Multidimensional Poverty

The multidimensional poverty index is the dependent variable of this paper, which includes 10 indicators from 5 dimensions including health, education, income, living conditions, and social relations. By setting the critical value of each indicator, the multidimensional poverty index of peasant households is measured by an equal weight method. According to the classification criteria of the HDR in 2011, we define the households with a share of multidimensional poverty deprivation greater than 1/3 (K = 0.33 according to the number of indicators) as multidimensional relatively poor households. The annual total value of each dimension index of monitoring farmers exceeds 1/3 (0.33) to be considered multidimensional poverty as per the MP.

Before the multidimensional poverty measurement, the incidence of poverty in one dimension and the contribution rate of each dimension index to poverty under the poverty critical value of 0.33 were measured by A-F method.

As shown in Table 2, first of all, from the ranking of poverty incidence in each dimension, the incidence of poverty in the index of years of education in the dimension of education is 87.10%. The poverty incidence of medical expenses in the health dimension was 76.70%. The incidence of poverty in social relation dimension was 70.90%. The incidence of poverty in the living standard dimension of electricity was 34.00%. The poverty incidence rate of per capita disposable income in the income dimension was 24.30%. The poverty rate of cooking fuel and per capita housing area in living standard dimension was 15.70%. The incidence of poverty in the health insurance index was 14.10%. The poverty rate of floor and assets of living standard dimension was 13.10%. It can be seen that education level, medical expenses, and social relations are the main reasons that lead farmers to fall into multidimensional poverty. A low level of education limits farmers' employment choices and remuneration, and high level of medical expenditure increases the risk of poverty-stricken households returning to poverty. The weak social relations make it difficult for farmers to develop sustainable social capital to get out of poverty.

Table 2. Contribution rates of multidimensional poverty dimensions of poor households.

Dimension	Index	Poverty Incidence	Index Dimension Contribution Rate
Health	Medical expenses	0.767	0.166
	Health insurance	0.141	0.031
Education	Years of education	0.871	0.373
Income	Per capita disposable income	0.243	0.109
Living Standard	Electricity	0.340	0.003
	Cooking fuel	0.157	0.001
	Floor	0.131	0.001
	Assets	0.131	0.001
	Per capita housing area	0.157	0.001
Social Relation	How easy it is to borrow money from friends and relatives	0.709	0.313

3.5.2. Land Lease

Land lease-in ratio and land lease-out ratio are the core independent variables of this paper. Land lease provides land production means for the surplus rural labor by expanding the agricultural land management area of farmers [50]. Meanwhile, land lease of rural households improves labor productivity through agricultural machinery and obtains operational income and wage income. In the process of land lease and agricultural management, social capital is accumulated through labor migration to realize multidimensional poverty alleviation. Land lease can release labor into the off-farm sector, change household income structure, improve employment skills, and facilitate the transformation of family thinking concepts and the accumulation of social capital. In this way, it can obtain the opportunity

to improve professional human capital, improve household viable capacity, and realize multidimensional poverty reduction [51].

3.5.3. Labor Migration

The proportion of labor migration of rural households' population is the intermediate variable in this paper. Rural labor is divided into the agricultural sector, off-farm sector, and family sector. The change in labor employment structure makes rural family income sources diversified. Rural households can release labor from agriculture sector to off-farm sector through land leases, expand income sources, directly improve wage income, enhance off-farm labor ability, and achieve sustainable poverty alleviation. By migrating labor into off-farm sector, rural households can improve the rate of agricultural mechanization, achieve large-scale operation of cultivated land, increase agricultural operating income, improve labor planting and management skills, and achieve poverty reduction [52].

3.5.4. Control Variables

With reference to existing studies [53], in order to exclude other factors that may affect multidimensional poverty of rural households, the control variables selected in this paper include: (1) individual characteristics of farmers, specifically including the farmer's gender, age, education level, and marital status; (2) family characteristics, including the total number of peasant households, the total number of labor force, the total household income, and social capital.

3.5.5. Statistics Description

Table 3 shows the meaning of variables and descriptive statistics. From the multidimensional poverty index of rural households, 76.70% of them fall into multidimensional poverty at the critical level of 0.33. It can be seen that from the multidimensional perspective, there are still many poverty-stricken households, and the fragile type of poverty-stricken households still makes them at risk of returning to poverty. From the perspective of land lease-in ratio and land lease-out ratio, the proportion of farmers' land lease-in and lease-out ratios accounted for 7.80% and 18.20%. It can be seen that farmers' land lease proportion is not high, and most of the farmers' strategies for land lease are to choose their land lease out. Agriculture is a weak industry and farmers' income is unstable. Transferring labor force to non-agricultural sector can stabilize the family income chain and improve income stability.

From the perspective of the proportion of labor migration in rural households, the proportion of labor migration accounts for 23.90%, which can be seen that the proportion of labor migration is not high. The possible reason is that the stable operation of farmland makes the mobility of labor between agricultural and off-farm sectors low. From the personal characteristics of farmers, male farmers accounted for 82.20% of the sample. The mean age of the sample farmers was 59.19 years old. The average years of education of the sample farmers were 4.229 years. The average marital status of the sample farmers was 2.583, indicating that most were married. Since the respondents of this questionnaire are farmers who know family conditions or are able to make family decisions, it can be seen that most of the farmers know family conditions or are able to make family decisions. Farmers in the sample area show an aging trend and generally have a low level of education. From the perspective of household characteristics of rural households, the average total population of rural households is 2.853, and the average of labor population of rural households is 0.929. It can be seen that the number of laborers is far lower than the total number of households. The logarithm average of total income and social capital of rural households was 8.831 and 2.043.

Table 3. Variable definition table.

Variable Name	Variable Code	Variable Definition (Unit)	Population Sample (n = 382)			
Dependent variable			Min	Max	Mean	S.D
Multidimensional poverty	MP	Multidimensional poverty in rural households	0	1	0.767	0.423
Core independent variable						
Land lease-in ratio	Rin	Land lease-in area/total household land area	0	1	0.078	0.207
Land lease-out ratio	Rout	Land lease-out area/total household land area	0	1	0.182	0.340
Mediating variable						
Labor migration	mig	Off-farm employment/total household population	0	1	0.239	0.342
Personal characteristics of householder						
Gender	gen	Gender of head of household (female = 0; Male = 1)	0	1	0.822	0.383
Age	age	Age of head of household (age)	18	92	59.186	14.942
Education	edu	Years of schooling for the head of the household (years)	0	16	4.229	3.387
Marital status of the householder	mar	Marital status: 1. Single 2. First marriage 3. Remarried 4. Divorced 5. Widowed	1	5	2.583	1.438
Family characteristics						
Total household size	Numt	Total household population	1	7	2.853	1.576
Labor number	NumL	Total household labor number	0	5	0.929	1.059
Household income	Income	Logarithm of total household income (CNY)	0	11.51	8.831	3.352
Social capital	SP	Logarithm of total household gift and gift expenditure (CNY)	0	9.9	2.043	3.000

Table 4 shows the independent sample T-test results of the main variables selected by the model. In this paper, farmers are divided into two groups of samples according to whether land lease in and land lease out are carried out, and an independent sample T-test is conducted. From the perspective of multidimensional poverty status of farmers, it can be seen that the mean of multidimensional poverty index of farmers in non-land lease-in group (0.901) is higher than that of farmers in land lease-in group (0.147). The mean value of the multidimensional poverty index of farmers in the non-land lease-out group (0.983) was higher than that in the land lease-out group (0.097), both at the 1% level of statistical significance. It can be preliminarily seen that farmers in land lease (including lease in and lease out) have a smaller probability of falling into multidimensional poverty, and the probability of farmers in land lease-out group falling into multidimensional poverty is smaller than that land lease-in group.

From the perspective of the labor migration ratio of farmers, it can be seen that the mean of the labor migration ratio of farmers in the land lease-in group (0.623) is higher than that of farmers in the non-land lease-in group (0.156). The mean value of labor migration ratio of farmers in the land lease-out group (0.689) was higher than that of farmers in the non-land lease out (0.094), which was statistically significant at 1% level. It can be seen that rural households with land leases (including lease in and lease out) are more likely to have labor migration, and the proportion of labor migration of rural households in the land lease-out group is higher than that in the land lease-in group.

From the perspective of individual characteristics of farmers, the mean age of farmers in the land lease-in group (53.206) is lower than that in the non-land lease-in group (60.481), and the mean age of farmers in the land lease-out group (55.591) is lower than that in the non-land lease-out group (60.343), both of which are significant at the level of 1%. It can be seen that farmers who carry out land lease (including lease in and lease out) tend to be

younger, but those who lease out land are older than those who lease in land, indicating that among the farmers who lease land, older farmers are more inclined to lease out land. The average years of schooling of farmers in the land lease-in group (6.309) is higher than that in the non-land lease-in group (3.779), and the average years of schooling of farmers in the land lease-out group (6.129) is higher than that in the non-land lease-out group (3.618), both of which are significant at the level of 1%. It can be seen that the farmers who have carried out land leases (including lease in and lease out) have a higher level of education.

Table 4. Independent sample T-test.

Variable Code	Land Lease-In Group (*n* = 68)	Non-Land Lease-In Group (*n* = 314)	T-Test	Land Lease-Out Group (*n* = 93)	Non-Land Lease-Out Group (*n* = 289)	T-Test
	Mean (S.D)	Mean (S.D)		Mean (S.D)	Mean (S.D)	
Rin	0.438 (0.289)	0.000 (0.000)	12.493 ***	0.194 (0.217)	0.041 (0.190)	6.087 ***
Rout	0.608 (0.365)	0.090 (0.254)	11.147 ***	0.747 (0.230)	0.000 (0.000)	31.338 ***
Mig	0.623 (0.411)	0.156 (0.260)	9.008 ***	0.689 (0.394)	0.094 (0.138)	14.282 ***
Gen	0.824 (0.384)	0.822 (0.383)	0.037	0.828 (0.380)	0.820 (0.385)	0.173
Age	53.206 (13.575)	60.481 (14.928)	−3.770 ***	55.591 (15.343)	60.343 (14.650)	−2.689 ***
Edu	6.309 (3.880)	3.779 (3.098)	5.041 ***	6.129 (3.954)	3.618 (2.939)	5.644 ***
Mar	2.426 (1.319)	2.618 (1.463)	−1.063	2.290 (1.265)	2.678 (1.480)	−2.464 **
Numt	3.279 (1.444)	2.761 (1.590)	2.476 ***	3.183 (1.532)	2.747 (1.577)	2.331 **
NumL	1.191 (1.055)	0.873 (1.053)	2.262 ***	1.194 (1.035)	0.844 (1.054)	2.792 ***
Income	9.920 (2.220)	8.595 (3.509)	3.965 ***	10.040 (1.662)	8.442 (3.655)	5.797 ***
SP	2.780 (3.347)	1.889 (2.900)	2.098 ***	2.496 (3.216)	1.897 (2.919)	1.598

Note: *** and ** are significant at the levels of 1% and 5%, respectively.

From the perspective of household characteristics, the mean number of households in the land lease-in group (3.279) was higher than that in the non-land lease-in group (2.761), and the mean number of households in the land lease-out group (3.183) was higher than that in the non-land lease-out group (2.747), at the 1% and 5% levels, respectively. It can be seen that the total number of households that lease land (including lease in and lease out) is higher than that of households that do not lease land, but the total number of households that lease in land is higher than that of households that lease out land. It can be seen that households with a large total number of household members are more inclined to lease land during land lease market. The mean number of household labor in the land lease-in group (1.191) was higher than that in the non-land lease-in group (0.873), and the mean number of household labor in the land lease-out group (1.194) was higher than that in the non-land lease-out group (0.844), both at the level of 1%. It can be seen that the labor quantity of rural households with land lease is higher than that of those without land lease. The mean household gross income of farmers in the land lease-in group (9.920) was higher than that in the non-land lease-in group (8.595), and the mean household gross income of farmers in the land lease-out group (10.040) was higher than that in the non-land lease-out group (8.442), both at the level of 1%. It can be seen that land lease can increase farmers' income, and the income-increasing effect of leasing out land is greater than that of leasing in land due to rent and off-farm worker income brought by leasing out land. The mean value of social capital of farmers in the land lease-in group (9.920) was higher than that in the non-land lease-in group (8.595), which was significant at the 1% level. Households in the land lease-in group were more dependent on their neighbors and friends than those in the land lease-out group and those without land lease.

3.6. Empirical Results

3.6.1. Impact of Land Transfer on Multidimensional Poverty

(1) Baseline Regression

In this paper, the multidimensional poverty index was used as the explanatory variable, and the OLS model was used to analyze the multidimensional poverty reduction effect of the proportion of leasing in land and the proportion of leasing out land as well as the mediating role of labor migration. Table 5 shows the baseline regression results. Model 1 and Model 2 represent the effect of the proportion of leasing in land on the multidimensional poverty index of rural households without and with the effect of the control variables, respectively. The results show that the proportion of leasing in land can significantly reduce the multidimensional poverty of rural households at the 1% level. Models 3 and 4 represent the effects of the proportion of land lease out on multidimensional poverty of rural households without and with the influence of control variables, respectively. The results show that the proportion of land lease out can significantly reduce the multidimensional poverty of rural households at the 1% level. This indicates that leasing out land helps to reduce the probability of multidimensional poverty among rural households. The possible reason for this is that the change in resource allocation brought about by leasing in farmland increases the efficiency of land output by relying on mechanization and scale, thus motivating the labor in the household to operate and increasing the income from land management. As the capacity of land operators increases, they are able to run their agriculture better and thus escape multidimensional poverty, which is consistent with the findings of Vijaya, R. M et al. (2014)'s [54,55] study. The release effect of the rural labor formed by leasing in land is an important condition for multidimensional poverty alleviation. The knowledge base and social competitiveness of rural labor are enhanced when they enter off-farm industries, and the increased employment opportunities make it more likely to escape poverty, which is consistent with the findings of Start, D. (2001) and Ruben, R. (2001) [56,57]. This result validates Hypothesis 1 that land lease, including both leasing in and out, has a significant contribution to alleviating multidimensional poverty.

However, the multidimensional poverty alleviation effects of land lease out and land lease in are asymmetric, with the proportion of land lease in alleviating multidimensional poverty by 0.969 (Model 1 without control variables) and 0.841 (Model 2 with control variables), respectively, and the proportion of land lease out alleviating multidimensional poverty by 1.147 (Model 3 without control variables) and 1.101 (Model 4 with control variables), respectively. The asymmetry in the poverty alleviation effect of leasing in land and leasing out land may be explained by the fact that rural households that undertook land lease out also released labor into the off-farm sector while receiving land rents and currently still earn more from off-farm work than from farming operations, thus giving them a higher income and, thus, a greater likelihood of poverty alleviation, which is consistent with the findings of Varga, M. (2020) [23]. This result verifies Hypothesis 2 that the poverty alleviation effects of farmland lease in and farmland lease out are asymmetrical.

Farmers' individual and household characteristics equally affect multidimensional poverty of rural households. In terms of individual characteristics, a farmer's education level can significantly reduce multidimensional poverty, and an increase in knowledge can lead to a broadening of horizons and a change in thinking, which can increase employment opportunities for farmers and, thus, achieve multidimensional poverty alleviation. In terms of household characteristics, an increase in income can lead to an intuitive improvement in livelihoods, and farmers can also increase their productive assets to improve productivity and accumulate social capital, thus achieving multidimensional poverty alleviation.

Table 5. Impact of land lease on multidimensional poverty: baseline regression.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Dependent Variable	***MP***	***MP***	***MP***	***MP***	***Mig***	***Mig***	***MP***	***MP***
Rin	−0.969 ***	−0.841 ***			0.562 ***		−0.378 ***	
	(0.166)	(0.151)			(0.110)		(0.139)	
Rout			−1.147 ***	−1.101 ***		0.793 ***		−0.945 ***
			(0.024)	(0.030)		(0.048)		(0.075)
Mig							−0.824 ***	−0.159 **
							(0.050)	(0.074)
Gen		0.055		0.013	0.003	0.034	0.057	0.019
		(0.054)		(0.018)	(0.045)	(0.035)	(0.042)	(0.018)
Age		−0.001		0.000	0.001	0.000	0.000	0.000
		(−0.001)		(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Edu		−0.038 ***		−0.010 ***	0.024 ***	0.004	−0.018 ***	−0.009 ***
		(0.006)		(0.003)	(0.006)	(0.004)	(0.005)	(0.003)
Mar		0.037 ***		0.008	−0.026 **	−0.006	0.015	0.008
		(0.014)		(0.005)	(0.012)	(0.009)	(0.010)	(0.005)
Numt		0.018		0.003	−0.004	0.006	0.014	0.004
		(0.014)		(0.007)	(0.012)	(0.009)	(0.009)	(0.006)
NumL		−0.026		0.003 ***	0.037 **	0.016	0.005	0.006
		(0.020)		(0.001)	(0.018)	(0.013)	(0.014)	(0.011)
Income		−0.020 ***		−0.004 ***	0.010 ***	−0.002	−0.012 ***	−0.004 ***
		(0.004)		(0.001)	(0.003)	(0.002)	(0.003)	(0.001)
SP		0.005		−0.003	−0.004	0.002	0.002	−0.003
		(0.007)		(0.003)	(0.006)	(0.004)	(0.005)	(0.003)
N	382	382	382	382	382	382	382	382
F	34.15	21.26	2375.13	346.57	8.68	51.72	165.19	325.69
R-squared	0.225 ***	0.354 ***	0.850 ***	0.859 ***	0.246 ***	0.663 ***	0.689 ***	0.865 ***

Note: *** and ** are significant at the levels of 1% and 5%, respectively.

(2) Mediating effects

In this paper, the proportion of labor migration was used as a mediating variable to explore its role in the multidimensional poverty alleviation effect of the proportion of land lease out and the proportion of land lease in. Models 5 and 6 show the effects of the proportion of land lease in and the proportion of land lease out on the proportion of labor migration, respectively. It is found that both land lease in and land lease out significantly contribute to labor migration, with the contribution of leasing out land to labor migration being greater than the contribution of leasing in land to labor migration. The possible reason for this is that the seasonal and cyclical nature of farming allows the household labor to devote more time to off-farm work, except for the busy period.

Models 7 and 8 demonstrate the mediating role of the proportion of labor migration in the multidimensional poverty alleviation effects of the proportion of land lease in and the proportion of land lease out, respectively. It is found that land lease, including the lease in and lease out, not only directly affects the multidimensional relative poverty of rural households but also indirectly through the mediating effect of labor migration. For land lease-in households, the scale of operation after land lease provides work opportunities for part of the labor of agricultural sector, and through the application of mechanization, farmers' professional skills and agricultural labor productivity pairs are greatly enhanced, leading to multidimensional poverty alleviation, which is consistent with the findings of Wang Z et al. (2022) [58]. For land lease-out households, the income-increasing effect of land lease creates conditions for labor migration and also pushes the remaining labor to migrate into off-farm sector, increasing educational opportunities and employment opportunities for labor, thus achieving multidimensional poverty alleviation, which is consistent with the findings of Liu, Y et al. (2021) [59]. This result validates Hypothesis 3 that labor migration has a positive contribution to the alleviation of multidimensional poverty by land lease;

that is, land lease is conducive to promoting the effective migration of rural labor and thus the alleviation of household multidimensional poverty.

3.6.2. Robustness Tests

The previous section empirically analyzed the multidimensional poverty alleviation effects of the land lease-in ratio and land lease-out ratio and the mediating role of the labor migration ratio. In this section, the proportion of land lease in and the proportion of land lease out are replaced with whether land lease in and whether land lease out and the proportion of labor migration is replaced with whether labor migration is made in order to test the robustness of the study findings. The main results of the robustness tests are shown in Table 6. Models 9 and 10 represent the effect of whether or not land is leased on the multidimensional poverty index of rural households without and with the effect of the control variables, respectively. The results show that land lease can significantly mitigate the multidimensional poverty of rural households at the 1% level. Models 11 and 12 represent the effect of whether or not land is leased out on multidimensional poverty of rural households without and with the influence of control variables, respectively. The results show that land lease can significantly alleviate the multidimensional poverty of rural households at the 1% level. The multidimensional poverty alleviation effect of land lease out was greater than the multidimensional poverty alleviation effect of land lease in. Models 13 and 14 show the effect of whether land is leased in and whether land is leased out on whether labor is migrated or not, respectively. It is found that both land lease in and land lease out significantly contribute to labor migration, and the contribution of leasing out land to labor migration is greater than the contribution of leasing in land to labor migration. Models 15 and 16 demonstrate the mediating role of labor migration in the multidimensional poverty alleviation effect of the proportion of land lease in and land lease out, respectively. It is found that land lease, including lease in and lease out, not only directly affects the multidimensional relative poverty of rural households but also indirectly through the mediating effect of labor migration. The regression results in Table 6 are consistent with those in Table 5, indicating that the findings of this paper are robust.

Table 6. Robustness tests.

	Model 9	**Model 10**	**Model 11**	**Model 12**	**Model 13**	**Model 14**	**Model 15**	**Model 16**
Dependent Variable	***MP***	***MP***	***MP***	***MP***	***Mig***	***Mig***	***MP***	***MP***
Rin	−0.754 *** (0.046)	−0.674 *** (0.053)	—	—	0.290 *** (0.063)	—	−0.623 *** (0.056)	—
Rout	—	—	−0.886 *** (0.032)	−0.844 *** (0.040)	—	0.395 *** (0.055)	—	−0.821 *** (0.044)
Mig	—	—	—	—	—	—	−0.176 *** (0.035)	−0.057 ** (0.024)
Control variables	—	Yes	—	Yes	Yes	Yes	Yes	Yes
N	382	382	382	382	382	382	382	382
F	265.92	63.07	781.76	484.64	6.85	11.96	62.67	490.03
R-squared	0.466 ***	0.528 ***	0.809 ***	0.823 ***	0.125 ***	0.179 ***	0.566 ***	0.827 ***

Note: *** and ** are significant at the levels of 1% and 5%, respectively.

3.6.3. Mediation Test

Based on the theoretical hypothesis, the significance of the mediating effect was tested using the parametric percentile residual bootstrap method and the parametric percentile residual bootstrap method for correcting bias, with the number of repetitions of sampling set at 1000, and the 95% confidence interval calculated. The results are shown in Table 7. The results of the tests are shown in Table 7. The results show that the 95% confidence intervals for the direct and indirect effects of both methods do not include 0 in the mediation path of the poverty alleviation effect of the proportion of labor migration in and the proportion of land lease out, indicating that the mediation effect of the proportion of labor migration is significant. The labor migration ratio was calculated to explain 55.05% of the total variance variation in the multidimensional poverty alleviation effect of the land lease-in

ratio, while the labor migration ratio explained 11.52% of the total variance variation in the multidimensional poverty alleviation effect of the land lease-out ratio.

Table 7. Parameter bootstrap mediating effect test with the proportion of labor transfers as the mediating variable.

Variables	Variables	Parameter Percentile Residual Bootstrap Method		Parameter Percentile Residual Bootstrap Method for Correction of Deviations		Agency Effect Volume
		Direct Effects	Indirect Effects	Direct Effects	Indirect Effects	
Land lease in	*MP*	−0.378 *** (−0.677,−0.126)	−0.463 *** (−0.692,−0.290)	−0.378 *** (−0.689,−0.131)	−0.463 *** (−0.696,−0.298)	55.05%
Land lease out	*MP*	−0.975 *** (−1.110,−0.812)	−0.127 ** (−0.257,−0.020)	−0.975 *** (−1.097,−0.798)	−0.127 ** (−0.279,−0.030)	11.52%

Note: *** and ** are significant at the levels of 1% and 5%, respectively.

4. Discussion

This study aimed to address whether land leases affected rural households' multidimensional poverty status, considering the mediating effect of labor migration. Based on the background of labor migration and land lease market development, which is a prominent phenomenon in China.

The contributions of this study are primarily reflected in the following three dimensions. First, unlike most of the previous studies, we examined both land lease-in and lease-out effects of diverse directions on multidimensional poverty alleviation. Whether there is the only single direction just only land lease in or land lease out was used to capture the overall land lease effect, or the land lease, which was not a consideration given the methods used in the land lease market, was chosen to represent the land lease effect of income, livelihood and even multidimensional poverty. We also examined the mediation effect of the multidimensional aspect, which is the proportion of rural households that migrate. In general, we found that land lease has a significant positive effect on multidimensional poverty reduction in terms of absolute and relative poverty. This is consistent with previous studies [60]; the results confirm Hypothesis 1 that land lease has a significant positive influence on alleviating multidimensional poverty. However, this study's results differ from others [21,53], which do not consider the asymmetrical effect of land lease in and lease out. The results report that the multidimensional poverty alleviation effects of land lease out and land lease in are asymmetric, with the proportion of land lease in by 0.969 without control variables and 0.841 with control variables and the proportion of land lease out by 1.147 without control variables and 1.101 with control variables. Our results also indicate that land lease in and lease out through the mediating effect of labor migration affect the multidimensional poverty alleviation positively, while the 95% confidence interval test is robust.

Second, our econometric analysis is predicated on the data of a rural household sample of the out-of-poverty. Households that have out of poverty are one of the most vulnerable groups in terms of livelihoods in rural areas nowadays. Studying the multidimensional poverty alleviation of households that have been out of poverty is prominent for China to consolidate the gains of poverty eradication and achieve rural revitalization. Our research findings provide important insights for achieving sustainable urban and rural development. As China's productivity levels develop and living standards improve, the connotations of multidimensional poverty are changing along with them. The applicability of this study can also be extended from rural areas to other regions. Promotion in other mountainous and ecologically fragile areas of China should be a policy priority.

Third, the same factors may have a different effect on multidimensional poverty alleviation. It has been found that land lease was negatively related to poverty alleviation; that is, land reforms that lagged four periods are negatively associated with a reduction in rural–urban poverty [61,62]. However, the results of this study differ from others [63], which do not consider the asymmetrical direction of farmland lease in rural households; that is, the status of land resource utilization in rural households. The possible reason

for this is that the change in resource allocation brought about by leasing out the land increases the efficiency of land production by relying on mechanization and scale, thus motivating the household labor to migrate and increasing the income from managing the land. Increasing the capacity of those who work the land will enable them to farm better and thus escape multi-dimensional poverty. The freeing up of rural labor through land leasing is a prominent prerequisite for multidimensional poverty alleviation. The knowledge base and social competitiveness of rural labor are enhanced when it enters the off-farm sector, and the increased employment opportunities make it more likely to escape poverty.

These results provide new insights into how land lease affects multidimensional poverty alleviation and, therefore, complement previous conclusions that labor migration as the mediating effect affects multidimensional poverty alleviation. This study contributes to the literature by improving our understanding of the influence of rural land use structure on the poverty issue. Furthermore, in order to identify factors associated with rural multidimensional poverty alleviation, this study combines OLS regression and mediation effect methods.

Although this study has contributed to a better understanding of the relationship between a land lease and multidimensional poverty alleviation, there are still some shortcomings that require further research.

Firstly, this study only focused on Jiangxi Province, China. In other areas of China, our results may be very different. Since the sample was randomly selected from the plain area around the city of Nanchang, we recommend that other studies should extrapolate our conclusions to other regions where the resources, environmental conditions, and demographic and institutional characteristics of the mountain area may be different. As a result, the interpretation of our results should be more cautious. More efforts are needed to study variations in multidimensional poverty alleviation across areas with different villages and geographic and socio-economic characteristics. Multidimensional poverty is also a broad concept that encompasses many aspects, such as health, education, income, the standard of living, and social relationships. It is worthwhile for future research to further explore the impact of these and other elements of possible factors on multidimensional poverty alleviation in order to fully capture the impact of different factors on multidimensional poverty alleviation. We hope that future research can be conducted from this perspective.

5. Conclusions

Under the theoretical structure of the land lease and multidimensional poverty, we conducted the data of the year 2020 in Jiangxi, China, enabling us to take advantage of the OLS linear regression and mediation effect models and Bootstrap Test in exploring the relationship between a land lease and households' multidimensional poverty. It is revealed that from the multidimensional poverty index of rural households, 76.70% of them fall into multidimensional poverty at the critical level of 0.33. Both land lease in and lease out have a significant positive influence on alleviating multidimensional poverty. However, the multidimensional poverty alleviation effects of land lease out and land lease in are asymmetric, with the proportion of leasing in land by 0.969 without control variables and 0.841 with control variables and the proportion of leasing out land by 1.147 without control variables and 1.101 with control variables. Land lease in and lease out through the mediating effect of labor migration affect multidimensional poverty alleviation positively. Meanwhile, the 95% confidence intervals for the direct and indirect effects of both methods do not include 0 in the mediation path, indicating that the mediation effect of the proportion of labor migration is significant.

Author Contributions: Conceptualization, all authors; formal analysis, H.X. and S.X.; investigation, all authors.; writing—original draft preparation, H.X., X.L. and S.X.; writing—review and editing, L.H. and F.X.; visualization, F.X. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the National Natural Science Foundation of China project, grant numbers 42161053, 42101310 and 72141016; the Scientific Research Development Fund Project of Zhejiang A&F University, grant number 2022FR014.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

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

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