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What Factors Influence Rural-To-Urban Migrant Peasants to Rent out Their Household Farmland? Evidence from China's Pearl River Delta

Ying Liu ¹, Rongrong Zhang ¹, Ming Li ¹  and Chunshan Zhou ^{1,2,*} 

¹ School of Geography and Planning, Sun Yat-sen University, No. 135, Xingang Xi Road, Guangzhou 510275, China; liuy436@mail2.sysu.edu.cn (Y.L.); zhangrr5@mail2.sysu.edu.cn (R.Z.); liming57@mail2.sysu.edu.cn (M.L.)

² Key Laboratory of the Sustainable Development of Xinjiang's Historical and Cultural Tourism, Xinjiang University, Urumqi 830046, China

* Correspondence: zhouc@mail.sysu.edu.cn; Tel.: +86-020-8411-1963

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Abstract: With the accommodative policy and rapid urbanization in China, large-scale migration of rural-to-urban peasants seeking nonagricultural employment has occurred. This has led to farmland rental, which is considered an effective means of land arrangement. Multiple variables were selected to examine the influencing factors of land rental for rural–urban peasants in China by using survey data collected in six core cities of the Pearl River Delta and a logistic regression model. This study revealed that benefits, household members, and urban living conditions and urban integration are factors that affect land rental. According to the results, improvements in working conditions, urban social insurance and urban integration, annual gross household income, and secure land ownership can promote land rental, whereas stronger hometown connections and parenting inhibit land rental. Women and youth excluded from China's previous land allocation hold complex attitudes toward land rental, with age and sex statistically significant variables affecting land rental. We underscore the influence of family members and urban living conditions for land rental, which were ignored in earlier studies, to provide suggestions for future policy development, with an emphasis on the land rental market and redistribution of idle land.

Keywords: rural-to-urban migration; land-use rights; farmland rental; impact variables; land policy development

1. Introduction

China has a traditional agricultural economy, and its rural policy orientation has changed with the development of the rural economy and society [1]. The rural socioeconomic system has transformed from an autarky system that is completely independent of the urban area into an urban–rural integrated system. In particular, with China's implementation of reform and opening-up policy in the late 1970s, a longer period of land-use rights was granted to peasants under the household contract responsibility system, which allowed farming households to establish contracts with collective economic organizations, whereby the means of production still belonged to the collectives and farming is operated by individual families through the principle of distribution according to work (State Council). Numerous rural surplus laborers appeared in the countryside owing to the limited amount of farmland. The obstructive factor of the rural-to-urban migration decreased with the deepening of China's reform, which led to the labor market's gradual transition to a market-oriented situation [2]. The rural surplus labor force was liberated from farmland and migrated to cities in search of work. China experienced a rapid increase in the number of rural-to-urban migrants [3].

According to the migrant workers monitoring and investigating report by National Bureau of Statistics (NBS) in 2017, rural-to-urban migrant peasants are people who have rural household registration, migrate to cities for nonagricultural work, which provides their main source of income, and have lived in the city for more than 6 months [4]. The total number of rural-to-urban migrant peasants in China was 286.5 million, accounting for 20.6% of the total population and 49.6% of the total registered rural population. On average, almost every second peasant chose to migrate to a city. Of these migrant peasants, the average age was 39.7, the gender ratio (male/female) was 1.9, the proportion of married individuals was 77.8%, the average monthly wage income was USD 516.2, and 76.1% had an education level of junior middle school or senior middle school.

The proportion of the resident population in urban areas (urbanization rate) of China increased from 17.9% in 1978 to 58.5% in 2017 [5]. China has developed from a traditional agricultural civilization into a relatively developed industrial civilization [6]. Rural-to-urban migrant peasants have significant effects on rapid urbanization [7]. However, most rural migrants were classified as “urban marginal groups” who had not been able to receive the same welfare benefits as urban residents because of the dual household registration system. The dual household registration system divides the people into agricultural and non-agricultural household registration by law, aim to restrict farmers from settling into the city strictly. The migrants’ urbanization has been stymied, and thus, a common phenomenon has developed in which rural-to-urban peasants do not settle in the migrant city permanently and periodically return to their hometown [8]. Nevertheless, the number of rural-to-urban migrants settling in cities has been slowly rising [9]. With changes in production and migrants’ living conditions, migrants’ farmland management, which had played a fundamental role in the traditional agricultural society, is changing considerably [10].

An increasing number of peasants have been choosing to migrate to cities because of the widening gap between urban and rural development. The rural-to-urban mobility of peasants promotes the emergence of two main land treatment methods: leaving farmland uncultivated (or under-cultivated) and land rental [11]. Some farmers leave farmland management to other members of their family when they migrate to the city for work [12]. These members tend to be elderly people and children, and they cultivate the farmland only intermittently, leading to extremely low and autarkical production. With the development of a rental market for farm land, some migrant peasants who pursue maximum benefits choose to lease their land to others and charge them rent [13,14]. However, because of an imperfect land rental market which is lack of the state legal regulations and policy to regulate and restrict the behaviors of the market participants [15,16], a large proportion of rural-to-urban migrants prefer to keep their farmland idle rather than rent it out, resulting in a waste of cultivated land resources.

The special land ownership system of China allows peasants to have land-use rights but not the land title, and this, together with the dual household registration system and the immature land rental market, has led to two prominent contradictions in the land arrangements of rural-to-urban migrants in China [17,18]. First, the agricultural land abandoned by peasants cannot be sold and is rarely rented out; second, migrants would rather leave the land uncultivated than renounce their land-use rights which are tied up with the rural household registration to resist the discrimination in the urban areas and ensure future life security.

In this research, the features of the agricultural land arrangements of rural-to-urban migrants in six core cities of the Pearl River Delta were analyzed. Various factors, including diversified variables capturing perceived urban living conditions and the influence of family members were selected in this study to investigate the influencing factors of land rental for Chinese rural–urban peasants. Then, on the basis of the results, suggestions related to the influencing factors for the sustainable development of the land rental market and redistribution of idle land, are provided to policymakers. The remainder of the paper is structured as follows: Section 2 summarizes related research and analyzes the theoretical model of factors that influence the land rental of migrants. Section 3 introduces the data used by the study and the interpretation of study variables, along with an overview of the study area. Section 4

describes the analysis process, the empirical model, and the model results. Section 5 discusses the results and their relation to relevant policies for farmland in China.

2. Literature Review and Theoretical Model

2.1. Literature Review

2.1.1. Analysis of Peasants' Rural-To-Urban Migration

The initial rural-to-urban migrant peasants, who were the result of the release of surplus rural labor, injected vigor into the development of China's economy [19]. Rural-to-urban migration changed the traditional inefficient collective production pattern in China [20], created new revenue channels for rural residents [21], reduced rural poverty, and improved the efficiency of agricultural production [22]. With a large influx of peasants providing cheap industrial labor, the cities of China experienced rapid development [23]. This transformation of production due to labor influx also led to the development of urban labor markets in China. Rural-to-urban migration, to a certain extent, restored the ecological damage caused by over-reclamation in rural areas [24].

The migration of rural peasants, especially young adults, caused the disintegration of the traditional rural production and living system. As a result, various rural problems emerged. For example, farmlands were left to be tended by elderly people, women, and kids, leading to a decline in grain production. The widening gap between urban and rural development increased rural-to-urban migration, which eventually increased labor, machinery, and other costs related to agricultural production. The higher cost of farming has increasingly resulted in cultivated land abandonment [25].

The phenomenon of rural hollowing worsened in China, leading to the loss of rural elites, lack of social investment, a decrease in the sense of identity and belonging to the rural areas, and poor development of rural areas [26,27]. The split-household migration of peasants due to the basic family financial situation negatively influenced the physical and mental health of the children left behind in rural areas, mainly in terms of school participation, methods of knowledge acquisition, self-cognition, and self-esteem [28,29]. It also caused a lack of support for and psychosomatic problems among the left-behind elderly people, particularly those whose children migrated permanently to urban areas [30].

Discrimination against rural-to-urban migrants has been widespread in all aspects of the urban area because of the dual household registration system [31]. Compared with urban residents, rural-to-urban migrant peasants received poor compensation and employment opportunities [32]. The average salary of urban local registered workers was 1.66 times that of rural-to-urban migrant peasants, even though the contribution to GDP of rural-to-urban migrant peasants was nearly the same as that of urban peasants [33]. The inequality of urban social benefits caused by urban-rural dualism was considered a direct embodiment of discrimination in the aspect of living conditions. It was difficult for migrant peasants with rural household registration to obtain the same social welfare and life insurance [34] or health and educational welfare as those provided to urban residents [35]. For rural migrants who were poor, commercial insurance was unattainable [36]. By contrast, the rural social security system had been gradually established and improved; thus, rural-to-urban migrants did not wish to abandon their rural household registration or their production and living materials, which included cultivated land.

The phenomenon of the stratification of rural migrant peasants occurred because of disparities in economic status [37]. Generally, rural migrant peasants with higher socioeconomic status had a stronger identity, sense of belonging, and intention to settle in the city to which they had moved [38]. However, migrant peasants with fewer benefits always had a lower degree of life satisfaction and well-being. Relative to the workload, their wage income was disproportionately low, which was considered to be a direct consequence of socioeconomic discrimination and social welfare exclusion [39]. In addition, a large number of peasants with fewer benefits were, consequently, frequently emotionally exhausted from highly repetitive and boring, routine unskilled jobs [40]. Accordingly, the arrangement of cultivated land differed for rural-to-urban migrants with different economic statuses.

Rural-to-urban migration also raised the already-widening regional development disparities between eastern coastal areas and the inland areas [41]. The influx of rural-to-urban migrants placed a heavy load on urban public services and infrastructure [42] and aggravated urban water and air pollution [43,44]. Furthermore, migrant peasants were mostly living in the suburbs (with the “urban marginal groups” status), which increased the likelihood of crime or victimization and the rate of HIV, hepatitis, and other infectious diseases because of low income, poor living conditions, unhealthy living habits, and unstable psychological conditions [45,46]. Their “urban marginal groups” status was also a critical reason for their inability to completely separate from the rural system.

2.1.2. Rural Land System in China

China has had dual-track urban and rural land systems: the urban land and part of the rural land have been owned by the national government, while the remaining rural land has been owned by village collectives [47]. The distinguishing feature of rural land systems has been periodic redistribution to the collectives, aiming for relatively equitable distribution [48]. After the establishment of the People’s Republic of China, cultivated land was allocated to different rural collective organizations with the purpose of egalitarian redistribution nationwide [49]. With policy reform and opening up, land system reform aiming to privatize land-use rights was initiated, because the traditional land system restricted the rural labor force and demand for productivity improvements increased. Cultivated land-use rights were allocated to every household according to the size of the labor force by the collectives through contracts with a limited period. Stable land-use rights considerably increased peasant motivation, resulting in significantly increased grain production [50]. However, as a result of the insecurity (only 15 years) of these land-use rights, agricultural production subsequently decreased, and the growth rate of the agricultural economy dropped [51]. Moreover, owing to a lack of control of the land use, farmland decreased by 566.7 thousand hectares per year from 1982 to 1986, seriously threatening food security [52].

In 1987, a strict land-use plan consisted of land use structure, target, plans and safeguards, which aimed to regulate land use behavior was formulated to curtail the decrease in cultivated land caused by the loss of rural population and rapid urbanization. In addition, a rural policy with a two-tier management system was formulated to solve the challenges of decreased agricultural investment and lack of farmer enthusiasm: This policy integrates separate, independent management of rural land by collectives and households with a land subsidy which provides government support to farmers. In addition, in 1998, the term of land-use rights was extended to 30 years through the Land Management Law [53]. The policies of the sloping land conversion program for environmental protection prime farmland protection to prevent the decrease in cultivated land, and implementation of the wasteland auction to promote land reuse after 2000 also affected the arrangement of cultivated land.

The transformation of the rural land policy was aimed at developing the land market, improving land allocation efficiency, and preserving agricultural land; this policy has had a tremendous effect on the agricultural production and lifestyle of peasants, especially in regions with more people and relatively less land or adverse natural environmental conditions [53,54]. Land-use rights were separated from land ownership with the policy of reform and opening up, the rural household became the basic unit of agricultural production and the agricultural market, and the development of the rural economy and farmers’ incentives to produce were promoted [55]. Peasants’ main purpose in agricultural production shifted to pursuing market value and maximizing profit as a result of the early policy adjustments to construct the agricultural product market, increase the purchase price of agricultural products, and encourage the diversification of the rural economic system [56].

The market-oriented selection of cultivated crops and the overuse of farm chemicals to maximize profit disrupted the balance of the national grain structure and sustainable land use model [57]. Subsequent implementation of environmental protection policies, such as the sloping land conversion program, further promoted the urban migration of surplus rural labor. However, owing to the instability of land-use rights, which could be changed with marriage, hukou, death, and expropriation

by landowners, including the national government and village collectives, and the strict hukou system, most rural-to-urban migrant peasants were not willing to settle in urban areas and abandon their land-use rights, leading to the circulation between urban and rural areas and the slowdown of urbanization [26,58].

The direct consequences of agricultural reform were control of the land-use pattern by the government, separation of ownership and land-use rights, and development of the land market. Today, there remain some serious challenges, including unsustainable use of cultivated land and illegal occupation of land, due to the sporadic and disordered agricultural production of peasants, which was caused by an imperfect land management and supervision system [59]. The hierarchical land management system of China allocated land ownership to village collectives, so the village committees managed the land ownership. However, these village committees have no right to transfer land for compensatory use, which resides with the state. According to the Land Administration Law, land that is under collective ownership can be expropriated if 'it is in the public interest'. The ambiguity of ownership and the mechanism for expropriation of cultivated land result in the relative ease of land acquisition under dubious conditions [60]. Some officials have failed to perform their duties appropriately and instead plunder land-use rights from farmers through the guise of 'public interest', which has damaged the individual profits of rural peasants [61,62]. Moreover, minors and married and remarried women, who were ignored by the system of land distribution, had more negative attitude towards agricultural production [63,64].

With the development of the labor market, more peasants migrated to cities for nonagricultural work with many more benefits than those gained from agricultural production. This migration led to an increasing amount of non-cultivated farmland [14]. However, in contrast to many other countries, peasants in China are not landowners; thus, transactions of cultivated land are not allowed in rural areas, which has led to shortcomings in the land rental market [65]. Furthermore, the degree of marketization of the land rental arrangement has been consistently low because of unstable land-use rights. Thus, land rental for peasants in China has been informal, short term, and among fellow villagers. With the influence of multiple factors, such as market circumstances, policy context, and others, peasants have developed more concerns about the benefits of the cultivated land arrangement, which is the major component of the opportunity cost of rural-to-urban migration [10,66].

In early times, cultivated land was an essential form of social security that originated from cropland assets for peasants [67]. Then, the widening gap between urban and rural areas caused by rapid urbanization and the higher wages of nonagricultural work made household agricultural production less appealing. Moreover, cultivable land is allocated by collectives to ensure every farming household can be equally assigned three grades of land—good, middle, and bad—and this increases the difficulty of household agricultural production. As an increasing number of peasants abandoned cultivated land and migrated to urban industries [68,69], the government issued a series of policies to promote the development of agricultural scale management and the land rental market, including the legal clearance of cultivated land rental from peasants to particular bodies, such as certain agricultural companies or cooperatives, and nongovernmental investment in the insurance, finance, and credit industries for land rental [70]. Thus, some rural-to-urban migrant peasants now do rent out their land-use rights for additional income, which has been seen as an effective arrangement of land [71].

2.2. Theoretical Model

Many factors influence the transformation of migrant peasants' land arrangements, including the urban–rural income gap, number of household members, education level, and nonagricultural employment stability [66,72,73]. Studies on factors that influence the land arrangement have mainly focused on the effect of economic factors based on the "Hypothesis of Economic Man". Many scholars in this field have generally believed that the main motivation of migrant peasants regarding land arrangement has been the income gap between urban and rural areas and the maximization of profits [74–76]. However, the special "hukou" and land rights system, traditional household pattern,

and integration into the urban community rarely have been considered in the analysis of the land arrangement of migrant peasants in China.

Recently, however, some research has focused on the relationship between migrant peasants' behavior and urban living conditions [77], the contradiction between land-use rights and urban settlement intention, and urban emotional factors [78–81]. Furthermore, a growing number of studies have suggested that migration has become a mutual decision of all family members [82–84] and that other family members have had an important influence on the intent and behavior of migrants, such as settlement intention [85,86]. Accordingly, the following moderation hypotheses were developed.

H1. *Economic variables are still important in land rental for rural–urban migrant peasants.*

H2. *The variables of urban living conditions and urban integration have effects on land rental for rural–urban migrant peasants.*

H3. *Land rental for rural–urban migrant peasants is influenced by household member variables.*

Therefore, in this study, household issues, urban living conditions, integration into the urban community, and other elements were considered to comprehensively analyze factors that influence land rental for migrant peasants. Consideration is given to the notion that the cultivated land arrangement of migrant peasants is influenced by three key factors: net benefits, urban living conditions and urban integration, and household members. The theoretical model in the paper is as follows:

$$Y_i = N_{ij} + U_{ij} + F_{ij} \quad (1)$$

where Y is a binary variable represents the choice of cultivated land arrangement of the migrant peasants (land rental or other non-rental arrangements); N is the net economic benefit from the arrangement selected, U is the urban living conditions and the degree of urban integration, and F is the influence of household members; i represents individual rural-to-urban migrant peasants; and j equals 1, 2, . . . , m , with m the number of variables in the group.

$$N_{ij} = S_{ij} + R_{ij} + C_{ij} \quad (2)$$

where S , R and C are the net benefits from the urban salary, land rental and the cropland assets, respectively. For the migrant peasants who chose to rent the household farmland, the revenue from crop sales is 0 and the expenditure on agricultural production is also 0. Thus, the net benefit C is 0. N consists of S and R . By contrast, for the migrant peasants with other arrangements, the value of R is 0, because the land is not rented and there is no rental income and no cost of land rental management. Normally, the purpose of migrant peasants' choice of farmland arrangement is to obtain the highest value of ' N ', but there are additional influences from U and F .

$$U_{ij} = Ld_{ij} + Id_{ij} \quad (3)$$

where Ld and Id are urban living conditions and urban integration, respectively. Ld comprises daily commuting, social insurance, and other conditions. Id comprises city preference, life satisfaction, and other aspects.

$$F_{ij} = Fs_{ij} - Fr_{ij} - Hr_{ij} \quad (4)$$

where Fs represents the supportive factors of household members, including the income of other family members and development of offspring; Fr is the resistance factor of family members, including the pension of aged members and sickness of other members; and Hr is the connection to the hometown (often through family relations), which is considered to have a negative effect on the choice to rent out land.

According to previous studies, the variables associated with net economic benefits (N) typically include three aspects: demographic variables, working status, and land factors. Age, sex, and education

level are three commonly studied demographic variables, which were considered to have effects on the level of salary and the capacity in the agricultural production [12,14–16,71,72]. Thus, the three variables were considered to have influence on the net benefits of “S” and “C” in Formula (2). With respect to working status, monthly wage income [87,88] and variables representing the intensity of work [89], including working days and working hours, were chosen in our study according to related research. For the land factor variables, the area of cultivated land was considered an important influencing factor to the land arrangement of migrants [11,14], which was seen as crucial to the net benefits of the “R” and “C” in Formula (2). The other variables included were whether a contract or certificate of cultivated land was in place and whether migrants returned to their hometowns in the harvest season [9,10,90]. The contract or certificate of cultivated land is the important legal document for the land rental market, especially for the market with an enterprise and company tenant [14,60,71,90], therefore, it affects the price of land rental, which is an important part of the net benefits of “R” in Formula (2). Returning to the hometown in harvest season means salary loss from absenteeism, additional cost of transportation, and is an indicator of cultivation and management of the farmland [9,10]. Thus, it affects the net benefit of “S” and “C” of Formula (2).

For the variables of living conditions, the status of private car ownership [91] and whether the housing provident fund¹ was obtained [92] were selected in our research to represent urban social insurance and urban transportation, key aspects of urban living conditions. The factors selected for urban integration were settlement intention [78–80] and willingness to live in the destination city for over 5 years. The variables selected to capture the influence of household members encompass three types of variables: household economic conditions, other family members’ conditions, and the migrant’s connection to the hometown. We selected the annual gross household income as the contrast variable for the migrant’s monthly income. Thus, moderation hypothesis H4 was developed.

H4. Annual gross household income is a significant variable for the land rental of migrants, while the monthly wage income (of the migrant) is not.

For other family members’ conditions, payment of parental medical expenses and the number of children were considered important variables in this study [93,94]. For the variables of connection to the hometown, whether migrants returned to their hometown for weddings or funerals and whether they returned to their hometown for the spring festival were chosen in our study [95]. The resulting analysis framework is shown in Figure 1.

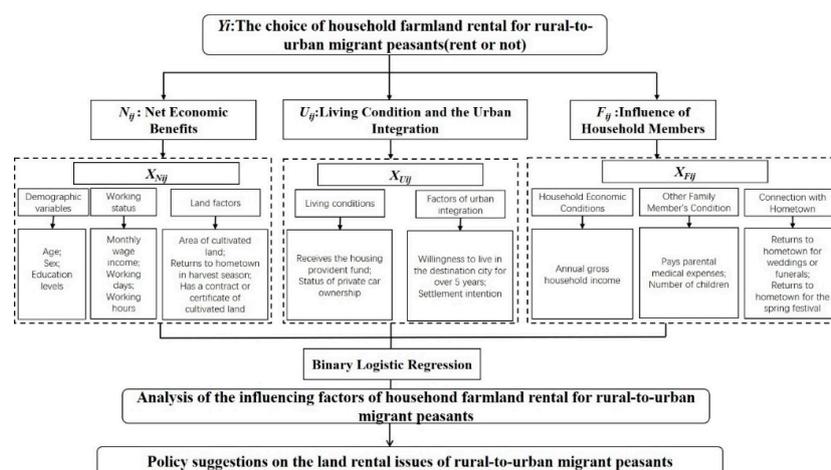


Figure 1. Analysis Framework.

¹ Housing provident fund is a long-term housing deposits deposited by state organs, institutions, state and urban collective enterprises and other urban enterprises, private enterprises, foreign invested enterprises and their employees for the housing. It’s only established in the urban area and for the salaried employees.

3. Data and Variables

3.1. Study Area

The study area is the core cities of the Pearl River Delta—Guangzhou, Shenzhen, Dongguan, Foshan, Zhuhai, and Zhongshan—located in Guangdong Province on the southern coast of China. The Pearl River Delta is one of the most developed regions in China, and the total GDP of all nine cities in the region reached USD 1.1 trillion in 2017, accounting for 9.17% of the total GDP of the country. The total amount of GDP of the core cities accounts for 88.65% of the GDP in the Pearl River Delta. The GDP for these six cities in 2017 was USD 318.5 billion, 332.3 billion, 112.3 billion, 141.4 billion, 38.0 billion, and 51.2 billion, respectively, and all of these cities were in the list of the top 100 of China's urban GDP in 2017.

The Pearl River Delta region was the pilot region of China's reform and opening-up policy and witnessed the earliest entry of migrant peasants, as early as the early 1980s. Since then, numerous rural workers have migrated to the Pearl River Delta. In 2017, the core cities of the Pearl River Delta had the most migrant peasants in Guangdong Province [96], which had the largest number of migrants in China [5]. In that year, the number of migrants in the six core cities was accounted for more than 10% of the total number in China.

3.2. Data Source

Data used in this study are from a survey of the living conditions of migrant peasants in the study area. The survey was conducted from April to October 2017 and included migrant peasants who had lived in the aforementioned cities for over 6 months without attaining urban residence under the household registration system. A questionnaire interview was the main method for survey data collection. All questionnaires were included questions related to family composition, employment income, social relations, children's education, daily life, and other aspects of rural migrant peasants' lives. Then, some trained investigators were requested to conduct face-to-face interviews and dialogues in public places, such as parks, street corners, stores, and restaurants, the other investigators were arranged to conduct the questionnaires in private locations, such as factories, institutions and government departments to take the questionnaire interview. The respondents were identified by a series questions before the interviews and dialogues, the questions were consisted of "whether having a local account", "whether living in the city for more than 6 months", "whether having a household registration" and so on.

A convenience sampling method (a non-probability sampling method) was used for the allocation of questionnaires within different cities because of the convenience for data acquisition and the desire to capture the diversity of potential respondents. By using this sampling method, we hoped to obtain more samples of migrant peasants with irregular employment or conditions, such as motorbike-taxi drivers, temporary migrant peasants, street vendors, and unemployed migrant women raising children. For each city, we determined the sample size according to the economic, social, and spatial factors of the different cities, such as city size, number of migrant peasants, total economic volume, social development of the city. Ultimately, we collected 1098 questionnaires for this survey. The number of valid questionnaires collected from Guangzhou, Dongguan, Shenzhen, Foshan, Zhongshan, and Zhuhai was 235, 245, 179, 158, 115, and 99, respectively.

3.3. Sample Description

The occupations of the respondents included government personnel, employees in enterprises, employees in the education and service industries, employees with irregular employment, vendors, unemployed individuals, and entrepreneur personnel. The average age of the respondents was 34.5 years. The male-to-female ratio was 1.3. Among the respondents, 80.4% were registered outside Guangdong Province, and 70.5% were married, including 19 divorced persons and 11 widows. The participants' average family size was 4.3 persons; the average number of school children and older

adults who were dependent on the respondents was 0.8 and 1.0, respectively. The respondents had an average of 10.1 years of education; most of them were educated up to the junior middle school level. Their average monthly wage was USD 472.0, and the average length of employment was 11.5 years. Moreover, 78.0% of the respondents were unskilled workers, and 29.6%, 24.0%, and 11.3% were engaged in the production industry (such as construction, industrial, and mining enterprises), service industry (restaurants, hotels, drivers, etc.), and retail business, respectively. Their job instability was high: 63.2% of them changed their jobs at least twice, with an average of 2.8 job changes.

Among the survey respondents, 462 interviewees chose to rent out the household contracted land in their hometown, and 568 managed their household land by self-cultivation or idling. However, 68 interviewees had an unclear idea regarding the arrangement methods of contracted land; their responses were therefore considered invalid; thus, 1030 valid questionnaires were used. For the 462 respondents who transferred contracted land, 87.0% chose to transfer their household land-use rights to neighbors, relatives, and others from the same village. Only 5.4% and 5.2% rented their household land to individuals in other villages and to enterprises, respectively, and 2.4% of respondents reported the land had been expropriated by the government. The rural land rental market was mainly restricted to neighboring villages, indicating reliance on an emotional or social relationship.

The average annual price of the contracted land rental was USD 520.3 per hectare. However, the price fluctuated widely when the land was transferred to different tenants. The average annual price of land rented to family and neighboring villagers was USD 335.1 per hectare. Among these interviewees, 5.6% (26) of them said that the tenants could give as much money per year as they like or use grains as the payment for renting the land; however, the conversion value of the grain and the random rent were generally under USD 148.1 per year, and 31.39% of the interviewees (145) even rented their household land to villagers for free. The average price of the land rental was considerably higher when the tenants were from other villages or were enterprises, with the average annual price being USD 947.5 per hectare and USD 3132.5 per hectare, respectively. The lower rental price in cases of family and neighbor rental suggest that land has not been fully marketized, with migrants' emotions and relationships affecting the land rental price in these cases.

3.4. Variables

The dependent variable is the choice of the arrangement of contracted land, namely, rental or non-rental, which includes self-cultivation or idling. To facilitate logistic regression analysis, we defined land rental as $Y = 1$ and other arrangements as $Y = 0$.

We divided the independent variables (X) into three categories, based on the theoretical model: net economic benefits, living conditions and urban integration, and influence of household members. The detailed variable descriptions are in Tables 1 and 2.

Table 1. Variable definitions.

Variables		Definition	
Dependent Variables	Land arrangements of migrant peasants	0 = other land arrangements; 1 = land rental	
Variables of net Economic Benefits	Age	1 = under 20 years old; 2 = 20–40 years old; 3 = 41–55 years old; 4 = above 55 years old	
	Sex	0 = female; 1 = male	
	Educational levels (years)	Years of education of the respondents	
	Monthly wage income	1 = under USD 444; 2 = USD 445–741; 3 = USD 742–1481; 4 = above USD 1481	
	Working Status	Working days (days per week)	The number of working days per week
		Working hours (hours per day)	The number of working hours per day

Table 1. Cont.

Variables		Definition
Land Factors	Area of cultivated land (hectare)	The gross area of the respondents' land
	Returns to hometown in harvest season	0 = no; 1 = yes
	Has a contract or certificate of cultivated land	0 = no; 1 = yes
Living Conditions	Receives the housing provident fund	0 = no; 1 = yes
	Status of private car ownership (unit)	The number of private cars of the respondents
Variables of the Living Condition and the Urban Integration	Willingness to live in the destination city for over 5 years	0 = unwilling; 1 = willing
	Settlement intention	0 = the migratory city; 1 = hometown
Household Economic Conditions	Annual gross household income	1 = under USD 7405; 2 = USD 7406–14,910; 3 = USD 14,911–22,315; 4 = USD 22,316–29,820; 5 = USD 29,821–74,054; 6 = above USD 74,054
	Other Family Member's Condition	Pays parental medical expenses
Household Member Factors	Number of children (people)	The number of children
	Connection with Hometown	Returns to hometown for weddings or funerals
Returns to hometown for the spring festival		0 = no; 1 = yes

Table 2. Descriptive statistics of variables.

Variables	Category	Mean	SD	Percentage Frequency	Absolute Frequency
Land arrangements of migrant peasants	0	–	–	55%	568
	1	–	–	45%	462
Age	1	–	–	28%	291
	2	–	–	53%	540
	3	–	–	11%	116
	4	–	–	8%	83
Sex	0	–	–	43%	443
	1	–	–	57%	587
Educational level (years)	–	10.1	3.7	–	–
Monthly wage income	1	–	–	20%	203
	2	–	–	58%	594
	3	–	–	16%	169
	4	–	–	6%	64
Working days (days per week)	–	6.0	0.8	–	–
Working hours (hours per day)	–	8.9	1.7	–	–
Area of cultivated land (hectares)	–	0.4	1.0	–	–
Returns to hometown in harvest season	0	–	–	93%	959
	1	–	–	7%	71
Has a contract or certificate of cultivated land	0	–	–	51%	530
	1	–	–	49%	500
Receives the housing provident fund	0	–	–	58%	597
	1	–	–	42%	433
Status of private car ownership (units)	–	0.3	0.7	–	–
Willingness to live in the destination city for over 5 years	0	–	–	44%	456
	1	–	–	56%	574
Settlement intention	0	–	–	41%	419
	1	–	–	59%	611

Table 2. Cont.

Variables	Category	Mean	SD	Percentage Frequency	Absolute Frequency
Annual gross household income	1			16%	166
	2			32%	346
	3	–	–	25%	280
	4			10%	103
	5			12%	123
	6			5%	55
Pays parental medical expenses	0	–		50%	514
	1			50%	516
Number of children (people)	–	0.5	0.5	–	–
Returns to hometown for weddings or funerals	0	–		55%	567
	1			45%	463
Returns to hometown for the spring festival	0	–		9%	97
	1			91%	933

3.5. Empirical Model

The land arrangement was divided into two categories according to the difference in the owner of the land-use rights: land rental, in which the land-use rights are transferred, or other arrangements of the land, including self-cultivation or idling, in which the land-use rights are not transferred. Because the arrangement of land is a binary choice, a binary logit model was adopted in this study to examine the influencing factors of land rental for rural-to-urban migrant peasants. The logit model is as follows:

$$Y_i = \begin{cases} 1, & Y_i^* > 0 \\ 0, & Y_i^* \leq 0 \end{cases} \quad (5)$$

$$Y_i^* = \alpha_{0i} + \alpha_{1i}X_{Ni} + \alpha_{2i}X_{Ui} + \alpha_{3i}X_{Fi} + \varepsilon_i \quad (6)$$

In this logit model, Y is the same as Y in Formula (1), which is a binary variable that represents the choice of household cultivated land arrangement for migrant peasants: rent or not; i represents individual rural-to-urban migrant peasants. Y^* is a latent variable which is assumed as a linear additive relationship we obtain for the utility difference. We consider an individual chooses to rent the household cultivated land if the utility difference exceeds a certain threshold level that can be set to zero without loss of generality. Therefore, $Y_i = 1$ (rental) if and only if $Y_i^* > 0$, while $Y_i = 0$ (non-rental) if $Y_i^* \leq 0$ [97].

X_{Ni} are a set of variables related to the economic benefits (age, sex, educational levels, monthly wage income, working days, working hours, area of cultivated land, returns to hometown in harvest season, has a contract or certificate of cultivated land); X_{Ui} are a group of variables representing living conditions and urban integration (receives the housing provident fund, status of private car ownership, willingness to live in the migrated city for over 5 years, settlement intention); and X_{Fi} are a set of variables representing household member influence (pays parental medical expenses, number of children, returns to hometown for weddings or funerals, returns to hometown for the spring festival).

4. Results

On the basis of the aforementioned dependent and independent variables, we developed a binary logistic regression model. Log-likelihood, chi-square, and pseudo R^2 values of the model all indicate good regression effects. Moreover, the Hausman–McFadden test was used to evaluate the goodness-of-fit for the model. The chi-square value was 151.45, the McFadden's R^2 value was 0.208, and the R^2 value was 0.646, demonstrating the suitability of the binary logistic regression model. The regression model analysis revealed 10 variables as statistically significant ($p < 0.1$) independent variables: age, sex, working hours, whether migrants return to their hometowns in harvest season, whether migrants have a contract or certificate of cultivated land, willingness to live in the destination city for over 5 years, number of children, whether migrants receive the housing provident fund, annual

gross household income, and whether migrants return to their hometowns for the spring festival. The detailed results are presented in Table 3.

Table 3. Estimates of logistic regression of land rental by migrant peasants.

Variables	B	Exp (B)	Sig.
Sex	0.305 **	1.357	0.037
Age (above 20)			
21–40	0.021	1.021	0.946
41–55	0.800 **	2.225	0.014
Above 55	1.329 ***	3.776	0.008
Educational status	−0.079	0.924	0.368
Monthly wage income	−0.113	0.893	0.351
Working days	−1.672	0.188	0.156
Working hours	−1.805 **	0.165	0.037
Has a contract or certificate of cultivated land	0.364 ***	1.438	0.008
Returns to hometown in harvest season	−1.128 ***	0.324	0.001
Area of cultivated land	0.192	1.211	0.303
Receives the housing provident fund	0.285 *	1.330	0.058
Willingness to live in the destination city for over 5 years	1.097 ***	2.994	0.000
Settlement intention	0.153	1.166	0.307
Private cars	0.201	1.222	0.135
Pays parental medical expenses	−0.166	0.847	0.240
Number of children	−0.303 ***	0.739	0.006
Annual gross household income (above USD 7405)			
USD 7406–14,910	0.292	1.339	0.148
USD 14,911–22,315	0.507 **	1.660	0.022
USD 22,316–29,820	0.792 ***	2.208	0.007
USD 29,821–74,054	0.544 *	1.723	0.068
Above USD 74,054	0.787	2.198	0.421
Returns to hometown for weddings or funerals	0.218	1.244	0.150
Returns to hometown for the spring festival	−0.534 *	0.586	0.060
Constant = 1.652			
Log-likelihood = −628.14			
Prob > chi ² = 0.0000			
pseudo R ² = 0.2076			

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Among the 10 statistically significant influencing factors, the model analysis results indicate that four variables have negative coefficients: working hours, number of children, whether migrants return to their hometowns for the spring festival, and whether they return to their hometowns in harvest season. This means that the respondents with intensive work (more working hours), more children, and less connection to their hometown (lower frequency of returning to their hometown for the spring festival or in harvest season) were less willing to rent out household cultivated land.

By contrast, there are six significant variables with positive coefficients (Table 3): sex (male), age (above 40 years), whether migrants have a contract or certificate of cultivated land, whether migrants receive the housing provident fund, willingness to live in the destination city for over 5 years, and gross household income (USD 14,911–74,054 per year). Thus, migrants who were male, older, and with specific household economic conditions (annual gross household income of USD 14,911–74,054 per year), better social security (receiving the housing provident fund), stronger identity with the city to which they had migrated (more willing to live in the migrated city for over 5 years), and a greater security of land-use rights (having a contract or certificate of cultivated land) were more willing to rent out their household land.

There are five significant variables related to net economic benefits: age (above 40 years) and sex were among the demographic variables, the number of working hours per day was related to the working status, and returning to hometown in the harvest season and having a contract or certificate

of cultivated land were related to land factors. This result supports H1. Sex and working hours were significant at the 5% level, whereas having a contract or certificate of cultivated land and returning to hometown in harvest season were significant at the 1% level. Moreover, the tendency to rent the land increased with age, with the associations being significant for ages of > 40 years and > 55 years at the 5% and 1% levels, respectively, while age was not significant for interviewees aged < 40 years (Table 3). Thus, variables considered to have a relationship to net economic benefits remain critical factors that affect land rental.

Two significant variables were related to living conditions and urban integration, which supports H2. One is whether the migrant receives the housing provident fund, which is seen as representative of having all urban social insurance and is commonly known as the “five insurances and one fund” (including endowment insurance, medical insurance, unemployment insurance, employment injury insurance, maternity insurance, and the housing provident fund). The other is the willingness to live in the destination city for over 5 years. These two variables were significant at the 10% and 1% levels, respectively (Table 3).

Three significant variables were related to the influence of household members, and this result supports H3 and H4: the number of children, annual gross household income (USD 14,911–74,054 per year), and whether migrants return to their hometown for the spring festival. The peasant migrants from households with higher annual income (USD 14,911–74,054) were more likely to choose to rent out land; the significance levels of income ranges of USD 14,911–22,315, USD 22,316–29,820, and USD 29,821–74,054 were 5%, 1%, and 10%, respectively (Table 3). The number of children was statistically significant at the 1% level, and returning to hometown for the spring festival was significant at the 10% level. The effect of household income on land rental was not observed in migrant peasants from households with a lower annual income (USD 7406–14,910) or even better economic conditions (household income > USD 74,054 per year).

According to the value of odd ratios (Table 3), the probability of land rental for male respondents was 35.7% higher than that for females; the land rental probability for respondents with a contract or certificate of cultivated land was 43.8% higher than those without a contract or certificate; the land rental probability for respondents who return to their hometowns in harvest season and for the spring festival was 67.6% and 41.4% lower than those who rarely return, respectively; the land rental probability for respondents with the housing provident fund was 33.0% higher than those who do not receive it; the land rental probability for respondents with a strong willingness to live in the destination city for over 5 years was 199.4% higher than those without such a willingness. The probability of land rental for respondents decreased by 83.5% for each additional hour of work per day, while the decrease in probability was 26.1% for each additional child in the household. Interviewees who were between 40 and 55 years old were 122.5% more likely to choose to rent out land than those under 20 years of age, while this value was 227.6% for respondents who were above 55. Compared with interviewees whose annual gross household income was under USD 7405, the probability of land rental for interviewees whose annual gross household was USD 14,911–22,315, USD 22,316–29,820, and USD 29,821–74,054 was 66.0%, 120.8%, and 72.3% higher, respectively.

5. Conclusions and Discussion

5.1. Conclusions

With the development of urbanization and the relaxation, or opening up, of macro policy in China, large-scale rural-to-urban migration of peasants has occurred. Urban–rural mobility, a shift from the traditional rural mode of migrant peasants, has had a great impact on the household contract responsibility system in China. Cultivating land is no longer necessary for many of these migrant peasants; therefore, some of them rent out their contracted land. In the current study, we analyzed factors that influence the land rental of migrant peasants, including economic benefits, living conditions and urban integration, and household member factors, and derived the following conclusions.

Overall, 44.9% of the migrant peasants rented out their contracted land, indicating that the majority of migrant peasants chose a non-rental arrangement for their household land. However, 39.2% of the respondents not renting out land at the time of the survey expressed a strong willingness to rent out their household land. The rentals were concentrated among relatives or neighbors from the same village as the migrant, with low financial benefits as a result of the opacity and immaturity of the land rental market, conditions which increase the difficulty of land rental. A rental market that is based on blood relationships or is regionally limited is neither sustainable nor liberal.

For most rural-to-urban migrant peasants, the benefit from cultivated land is mainly economic compensation from the output of agriculture, especially for those with a lower household income. However, with an increase in household income and improvements in urban living conditions, the compensation offered by farming becomes gradually inadequate, and the land is considered more like private property that can be used for circulation. The higher annual gross household is considered to have a positive effect on the choice to rent out household farmland. However, the highest annual household income level is not significant due to the insufficient sample size. In addition, the respondents with intense working conditions, which worked more hours per day, are less likely to rent out their land.

Better urban social insurance and higher social integration in host cities can facilitate more migrant peasants to choose land rental. A sound social security system would relieve their concerns regarding the future, especially after retirement. Peasants with a willingness to live in the destination city for over 5 years have a higher level of urban life satisfaction and urban integration; thus, they are more likely to choose to rent out their cultivated land, which is regarded the means of production for agriculture and a symbol of the rural system. By contrast, migrant peasants with a closer relationship to their hometown have a lower likelihood of renting out their household land.

Women and children, having unequal access to household farmland, generally hold conservative attitudes toward household farmland rental, because they are not the primary decision-maker. However, the survey results indicate that the number of household children has a significant effect on land rental. Parenting often leads to “semi-urbanization” and circular migration as opposed to urban integration. Thus, these migrant peasants are not completely engaged in nonagricultural urban work, and the output of farmland compensates for some economic losses arising from less urban work. In addition, secure and stable land-use rights are conducive to land rental. Our results reveal that migrant peasants with a contract or certificate of cultivated land are more likely to rent out land.

5.2. Discussion

Compared with many studies on migrant peasant land-renting behavior, which have focused on the effects of economic factors for land rental [71–77], our study shows that two other aspects also play an important role in land rental, namely, household member influence and urban living conditions and urban integration. In contrast to other studies [87,88], personal monthly wage income was not a significant variable for land rental in our study, which indicates that the decision to rent out land tends to reflect the collective intention of the whole household. In addition, variables representing recognition by the city, a stable and secure land-ownership certificate, and the relationship with their hometowns, which have been studied less often in previous research, are demonstrated to be significant for land rental in our study.

The separation between land ownership and land-use rights in the land system nowadays is the main difference between China and most other countries. The official prohibition of farmland transactions, the limited term of land-use rights, and the strict hukou system are all special conditions that shape the land rental market in China and the land rental choice of China’s migrant peasants. The land rental market in China is more opaque and immature than those in surrounding traditional agricultural countries, such as India and Vietnam [98,99]. However, some challenges have been discovered common to China and Vietnam [90]. The first one is that women’s rights were neglected in previous land allocation which was also common in Mexico [100], so women tend to hold an

ambiguous attitude toward land rental, which is disadvantageous for the development of the land rental market. The second challenge is that the contract or certificate of cultivated land, which is seen as the symbol of secure land ownership or use rights, has a positive effect on land rental but many migrant peasants lack these documents. Women's rights must be valued in the process of land policy formulation in regions with similar characteristics. Then, for the sustainable development of a land rental market, ownership or use rights of farmland must be formalized by a contract or certificate issued by the government. China's government is currently engaged in a process of "Rural Land Ownership Registration".

Although the current household contract responsibility system guarantees land-use rights, it lacks sufficient guidance for the land rental process. The Chinese government has constantly revised and improved the "Law of Rural Land Contract" and has published a series of regulations, such as one for the transfer of contracted land's management rights; however, the rural land transfer market also has low marketization and remains opaque and immature. As with the land rental market, transactions in the land transfer market are mainly between relatives or villagers from the same or neighboring villages; thus, the current price of rented land does not match the demand for or development of the general land market.

Policymakers should consider issuing a series of laws and regulations to standardize different market participants—the individual, rural collectives, enterprises, and governments—and construct a digital platform with market supply and demand information and e-government land rental services to facilitate a transparent land market. Confirmation of land rights through specific certifications and a database should be included in future policies. In addition, the recovery and redistribution of uncultivated agricultural land are necessary for sustainable land arrangements and for avoiding land abandonment in rural areas. Moreover, the rights of women and minors, who were excluded previously, should be seriously considered in any future land redistribution.

One limitation of this study is that in the analysis of the relationship between the land rental market and the land rental price in China, we have emphasized the negative influence of the opacity and immaturity of the rental market on the land rental price. However, other factors also have pronounced effects on the land rental price, including the morphology of rural land; the quality, structure, and economic properties of cultivated land; the socioeconomic and human factors of peasants' hometowns; and the characteristics of land rentals, such as the length of the rental period and the type of rental contract. These factors should be taken into account in further research.

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