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Journal of Asian Economics

journal homepage: www.elsevier.com/locate/asieco

The impact of Chinese government promoted homestead transfer on labor migration and household's well-being: A study in three rural areas

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ARTICLE INFO

JEL classification:

J48

I31

Q15

Keywords:

Rural homestead transfer (RHT)

Labors' migration

Well-being

Yiwu

Wujin

Changyuan

ABSTRACT

The rural homestead transfers (RHT) promoted by the Chinese government in the recent years have resulted in major economic and landscape changes in the countryside and profound impacts on the households' well-beings. Our paper aims to explain the complex relation between RHT, labor migration and households' well-beings, based on a survey about three pilot rural areas (*Changyuan, Yiwu and Wujin*, in the *Henan, Zhejiang and Jiangsu* Provinces). The results found that the transfer has directly influenced the farmers' income status, and indirectly through labors' migration. RHT had a positive impact on their residential environment, and poorly improved their social security. It has improved the living standard of the households, positively influenced the farmers' psychological state, and had very limited influence on their political participation and freedom.

1. Introduction

Land is the solid basis for human survival, and sustainable land use is a crucial asset for the economic development of human society (Liu, 2018), especially in developing countries. Everywhere in the World, rapid urbanization is currently progressing and will continue to spread into the foreseeable future with farmland conversion and land use transition (Ding et al., 2012). Slums in cities are expanding as poor and uneducated rural workers continue to move to seek their fortunes and leave their previous rural land and their farming practices (Liu & Li, 2017).

The implementation of land consolidation projects can be a solution to the problems of alleged poverty and non-development of several rural areas, worldwide. It can increase the amount of cultivated land and improve their productivity and the ecological environment, augment farmers' income, and reduce poverty. For example, land consolidation in Spain brought a noticeable improvement in property structure and production cost savings (Colombo & Manuel, 2019). But the question of resettlement is at stake: many rural residents need to leave their previous hometown to move to a new place and find new employment and carry on new life in the replacement.

Land and housing policies can play a major role in smoothen this transition and improving ecological environment and rural

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¹ Research area: Rural land economic and Policy, Rural homestead transfer, household well-beings.

<https://doi.org/10.1016/j.asieco.2023.101616>

Received 7 May 2022; Received in revised form 28 December 2022; Accepted 4 April 2023

Available online 7 April 2023

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livelihood (Barrett et al., 2001; Bryan et al., 2018; Shahbaz and Ali, 2007). Land governance has been the main pre-condition enabling reductions in deforestation in Brazil through participatory strategies improving land use and land ownership through (Reydon et al., 2020). In Africa, better economic and agricultural policies could be effective in tackling both land degradation and rural poverty (Barbier, 2000), like the promotion of agroforestry in Sudan (Abdi et al., 2013), but poor planning and inappropriate procedures for beneficiary selection often result in a drastic decline in production and productivity of the agricultural sector (Muchara & Obi, 2010; Westlund & Nilsson, 2019). In Pakistan, territorial governance links and behaviors between key groups of actors have been proved of great importance for preventing and resolving land use conflicts in rural areas (Magsi & Torre, 2014). In post-apartheid South Africa, migrants have shifted their focus from agriculture to new forms of rural investment over the past two decades (Bank, 2015).

In China, the process of homestead transfer in rural areas can bring some solutions to these issues. As the largest developing country in the World, China has experienced land loss and suffers from the complex human-land relationship and unsustainable resources and environment (Li & Chen, 2022), due to its rapid industrialization and urbanization (Quére et al., 2016). Sustainable economic development policy and new "land system reforming" method have brought local residents ongoing earnings without eradicating the poverty trap (Cao et al., 2009, 2017; Wang & Li, 2019; Zang et al., 2020). The poverty alleviation cannot solve all the problems, the core lies in improving all dimensions of the welfare of farmers, including their income, which depends not only on top-down policy reforms from the government (Zhao & Zhang, 2017; Long et al., 2012), but also on the sustainable and effective use of their own resources and assets by the farmers (Lyu et al., 2022). Various researches have proved that the weakness of rural homestead transfer severely restricts the migration of rural surplus labor in China, and puts rural economy into a "food and clothing trap" (Cai & Du, 2002). Based on the goal of protecting cultivated land and maintaining social stability in rural areas, the State still imposes many restrictions on homestead transfer (Yuan, 2010, 2011), which constrain the free transfer of land, capital and labor force. As the most important property of the rural households, the homestead assets value cannot be realized (Qian et al., 2019). Given homesteads and houses are important properties for the households (Zhao et al., 2019), measures should be encouraged and supported to protect and realize farmers' rights and interests (Qian et al., 2019; Wang et al., 2018). Land transfer and surplus labor migration should be synchronized. Therefore, narrowing gradually the income gap between urban and rural residents, effectively improving the income and welfare of the rural poor (Roger, 2004; Simbarashe et al., 2011), have become the key points of the rural system reform.

Despite the controversy over how to reform the homestead system, some consensus has also formed, that is, to revitalize this huge sleeping asset through reforming, improving homestead utilization efficiency and increasing property income of farmers (Peng and Fang, 2012). China has implemented several government-oriented homestead transfer policies in recent years (Long et al., 2012; Zhang et al., 2020; L. Zhou et al., 2019; Y. Zhou et al., 2019). In 2015, the General Offices of the CPC Central Committee and of the State Council jointly issued pilot opinions on rural land expropriation, marketization of collective commercial construction land, and launched the reform of rural homestead system (Kong et al., 2018;). The homestead replacement and homestead quitting led by the government are equivalent to "strongly define property rights" (Xu et al., 2011), while the land rights and demands of the farmers are often ignored. This government driven model raises questions about the respect of farmers' rights and their willingness to exchange their property, and could lead to some issues linked to the "unfair distribution of income from homestead development rights, and insufficient compensation for farmers' homesteads and houses" (Huang et al., 2012; Kong et al., 2018; Wang et al., 2018; Yuan, 2010, 2011).

Studies have shown that the government promoted rural homestead transfer (RHT) has created conditions for the farmers' migration and employment, which increased their sources of income (Chen, 2010; Lyu et al., 2022; Zhang et al., 2021). The main question is that of the possibility of a sustainable improvement of farmers' livelihood (Ding et al., 2016; O'Brien, 2012). Some scholars think that the market transfer of farmers' land security rights can provide migration incentives for the potential migrant population and also alleviate its pressure on land (Zhang & Liu, 2008). Other suggest that this model enhances the farmers' ability to migrate to the big cities for employment, which increased their non-agricultural income (Huang et al., 2012; Liu et al., 2020). But the researches on the relationship among farmland transfer, off-farm employment and the households' welfare are relatively lagging (Gao et al., 2007; Liu, 2016; You et al., 2013; Zhai et al., 2017; Zhang et al., 2018). Most of the studies of homestead transfer impact on the welfare of the households (Jia & Wang, 2014; Li et al., 2019; Shangguan et al., 2017) pay attention to the single impact of homestead replacement or transfer on the residential form, housing structure, and living conditions of farmers (Li et al., 2019; Ma & Sun, 2012; Zhao & Zhang, 2017). But the description and disclosure of indirect influence mechanisms, through possible labor migration, capital accumulation, risk profit and loss, and financial mortgage effects are not sufficient. Moreover, the selection of welfare indicators is not comprehensive enough, and the representations of subjective well-beings seems insufficient.

This paper aims to explain the complex relation between government's promoted homestead transfer, labor migration and households' well-beings, based on large surveys about the practice and experiences gained in three areas (Changyuan, Yiwu and Wujin, in the Henan, Zhejiang and Jiangsu Provinces). We provide answers to two key research questions: What are the impacts of government promoted RHT on the household's wellbeing? What are the respective contributions of the direct and indirect (via labor migration) channels to these changes?

Section 2 is devoted to the presentation of the homestead transfer mechanism and its possible effects in terms of well-being and employment. Section 3 presents the research area and data description. The empirical analysis is discussed in Section 4. Section 5 is a discussion about the research results. The paper ends up with the conclusion, policy implications and research limitations.

2. The homestead transfer mechanism and its possible effects in terms of well-being and employment

Rural homestead, in a broad sense, refers to the land used by rural households for residence and living, that is, the general name for the land used for housing and buildings, and facilities related to residential life. A homestead is made of residential land like kitchens,

toilets and other items, but includes also warehouses, livestock houses, agricultural machinery rooms and other living service facilities, small green forests, vegetable plots, and flower gardens in front of and behind the house.

2.1. The question of rural homestead transfer: poverty, migration, and resettlement

Studies related to rural livelihood diversification identify three types of strategies. First, a single livelihood diversification strategy: labor migration (Mullan et al., 2011; Uchida et al., 2009; Zhao, 2012). Second, a combination of livelihood strategies - migration and off-farm work (Demurger et al., 2010; Shi et al., 2007). The third strand focuses on several livelihood strategies like off-farm employment, field crops or livestock production, basic grains farmers, etc. (Jansen et al., 2006; Jiao et al., 2017; Nielsen et al., 2013; Waleign et al., 2017). A few studies have investigated third strand livelihood strategies (Jiao et al., 2017; Xu and Le, 2012) including income-generating strategies (on- and off-farm) and the income-generating capacity of household assets.

Migration can play an important role in reducing rural poverty and improving overall productivity (Au & Henderson, 2006; Rozelle et al., 1999, Stark, 1991). It can absorb surplus family labor that cannot be fully employed on the farm (Bowlus & Sicular, 2003; Woldenhanna & Oskam, 2001), and thereby increases and diversifies the income of rural households (Atamanov & Van den Berg, 2012; De Brauw et al., 2002; Taylor, 2004). Land may also be rented by new and more efficient farmers (Ma et al., 2017), and in areas lacking a well-functioning credit market, migrant remittances can provide cash for investing in agricultural production (De Brauw & Rozelle, 2008; Matshe & Young, 2004) and are therefore expected to increase agricultural productivity. Moreover, the insurance effect of more diversified household incomes may shift farm production towards riskier but also more profitable crops and thereby raise the incomes of smallholder farmers (Gehrke, 2019; Taylor & Martin, 2001).

As one of the most prominent poverty-stricken countries in the world, China has been innovating the way of land use to alleviate poverty (Li et al., 2015, 2016). Under the background of land system innovation, both land consolidation and displaced resettlements are effective instruments to alleviate poverty (L. Zhou et al., 2019; Y. Zhou et al., 2019). The government maintains that its poverty alleviation resettlement program is a successful example of voluntary resettlement. Under this national anti-poverty initiative, millions of people living in the poorest parts of the country have been resettled “voluntarily” (Lo & Wang, 2018). Rural livelihood transitions have strong policy implications for reducing poverty and achieving livelihood sustainability in the long run (Richard, 2002). Based on this, the land policies innovative should focus on the labor migration and extended livelihood transitions, which will substantially help to solve the poverty problems in Chinese rural areas (Yang and Zhao, 2009).

Homestead transfer is one of the land use solutions provided by public authorities or private organizations worldwide to try to solve problems regarding household’s livelihoods and the poverty alleviation in rural areas. The economic conditions of the farmers are supposed to improve in the short term after their relocation. But one may wonder if this trend is confirmed in the long and medium term, as most farmers do not have a sustained and stable non-agricultural income and their property income is accompanied by greater risk after relocation, while expenditure on all family aspects will gradually rise in the foreseeable future. The old houses built on rural residential land cannot be bought, sold, or leased, so their economic value is low. However, most of the relocation and resettlement houses are built on state-owned land. As long as the certificates are complete, they can be traded in the market, which has greatly improved the economic value of the farmers’ housing (Zhang et al., 2021). On the other hand, after relocation, the conditions of the farmers’ more centralized settlement area are better than the original dispersed location conditions, which has clearly helped improve the value of the housing (Fig. 1).

2.2. The mechanism of rural homestead transfer in China

The Chinese government promotes RHT, which is regarded as the capitalization of the village land resource, with the aims of developing land intensive efficiency and achieving the property income (Benham & Benham, 1998). The previous homesteads are taken back by the collective economic organization, redeveloped and exploited. The compensation and resettlement, which result in



Fig. 1. The landscape of Chinese rural homesteads (Pictures taken by the first author).

changes in housing forms and property rights (Shangguan et al., 2017), puts the effect on the farmers' property and income. The homestead transfer may influence the spatial variation of the rural labors' migration. The work of the farmers can be done in the farm or outside; the off-farm employment takes three different forms: local (in the village, native town or county), outgoing (outside the county) and returning back migration (coming back from the outside). RHT may also drive huge influence on the farmers' residence environment, living conditions, emotion feelings, different forms of income, and accordingly lead to a profound impact on the well-being of farmers in all dimensions.

More precisely, the government homestead transfer can take three ways:

1) *The government provides monetary compensation and resettlement for the households.* The farmers obtain money and one or more houses/apartments according to the size of the family and the area of the previous homestead. This drives changes in housing forms and property rights. The transfer of money greatly increases the income of farmers: it allows them to accumulate their original funds, and to pay for their transportation costs for off farm jobs to the cities, thereby promoting the migration of rural labors. In other words, the income accumulation effects resulted from RHT may promote the migration of the household for off-farm employments outside of the countryside. On the other hand, the government provides farmers housing security (property rights) and housing resettlement compensation (new apartments), which can generate a large amount of asset income. It may inhibit the migration of farmers and just proceed the local off-farm employment, i.e., they may simply choose local employment or active unemployment. Thus, this policy leads to great changes in the structure of agricultural and off-farm income. In addition, the different paths of labors' migration, withdrawn from the original villages, and transformations into another livelihood, has influences on the household residential environment, as well as their psychological feelings and emotions.

2) *Foreign industrial enterprises and developers are introduced,* with secondary and tertiary industries, for industrial park construction and development. This strategy brings a large number of industries and private economies in the local area, which produce agglomeration and economies of scale, and provide a large number of off-farm employment opportunities for rural workers. The setting of industrial clusters greatly reduces the information search and commuting costs of the farmers, and promotes employment in the local area. In addition, industrial agglomeration can increase local wage levels. In other words, the driving effect of industries may prompt rural to work in the local off-farm employment markets, as well as attracting the return of rural workers from the outside.

This situation has a profound impact on the well-being of farmers. In the first place, those who move to the local industry and return back from the outside can combine local off-farm work and on-farm work and enhance their income. Secondly, they have more opportunities to stay with their families, which may promote the collaboration of the family members and the affective interaction. They can take care of their children and respect for the elderly, which may present a positive effect on farmers' family emotion and psychological feelings. Thirdly, owing to solid traditional social ties, comprehensive social network with their families and clan, they can access to the right to vote on village collective affairs, the access to participation in major community events, hence have more access to the political participation and freedom. Fourth, owing that the new social security and the full coverage of medical insurance in rural areas have increased, the farmers who return back can enjoy the equal and relatively sound social security, and their children can enjoy the equal rights of education. On the other hand, the setting of industrial parks and the agglomeration of low-level industries will inevitably produce some environmentally harmful pollution, with negative consequences on the residential environment of the households.

3) *The government replaces the previous homestead with apartments/housing in which people live in a concentrated community.* It changes the original independent single-family residential form, and conducts to losing the agricultural business income, as well as the livestock and poultry breeding income obtained from the original homestead. For some low-income groups, it means to lose the only source of livelihood. These changes may increase the farmer's mental burden and also the risk of livelihood deterioration, and then enhance the transform motivation, and promote the labors' outgoing migration. This is consistent with the relative poverty hypothesis (Easterline, 1974). Individuals often compare their income with those around them. When a person's income decreases suddenly, his social status (or income) will be in a relatively poor state, which will lead to a sudden decrease in his happiness, and more hard work and efforts will be needed to weaken the impact of the loss of income to livelihood sustainability (Helliwell et al., 2012). The more impoverished and desperate farmers are dare to endeavor, transfer to the big cities or local places with more development opportunities to find employment and increase their income. In other words, the weakening effect of the production and economic functions of rural homestead/housing may result in changes in the livelihood strategies of rural workers, prompting them to migrated for employment or turn into local off-farm employment.

Due to the wholesome infrastructure condition and abundant industry structure, the farmers can have numerous choices according to their talents and skills in the urban areas. However, it may also hide a great deal of risks. Normally, farmers in the city can earn higher salaries than in rural areas, but they are also faced with discrimination and unequal wage treatment. Owing to the restrictions of the household registration system they cannot have the equal rights to enjoy the social security, the wholesome public services, and the equal education for the children; etc.

These specific impact mechanisms and paths are resumed in Fig. 2:

Based on the above analysis, this paper proposes the following research hypotheses to be tested:

H1. : Farmers who receive high compensation (both by monetary and housing) by the RHT projects and participate in the diversified migration employment (out-going migration and local off-farm employment) may have a high salary, which brings remittances for the whole family. It results in a positive effect on the household's income situation. However, it could also generate various effects on residential environment and psychological feelings and emotions.

H2. : Farmers who proceed the local off-farm work and returning back migration from the establishment of industries by RHT projects, may reduce their living expenses and have more opportunities to stay with their family members and the affective interaction.

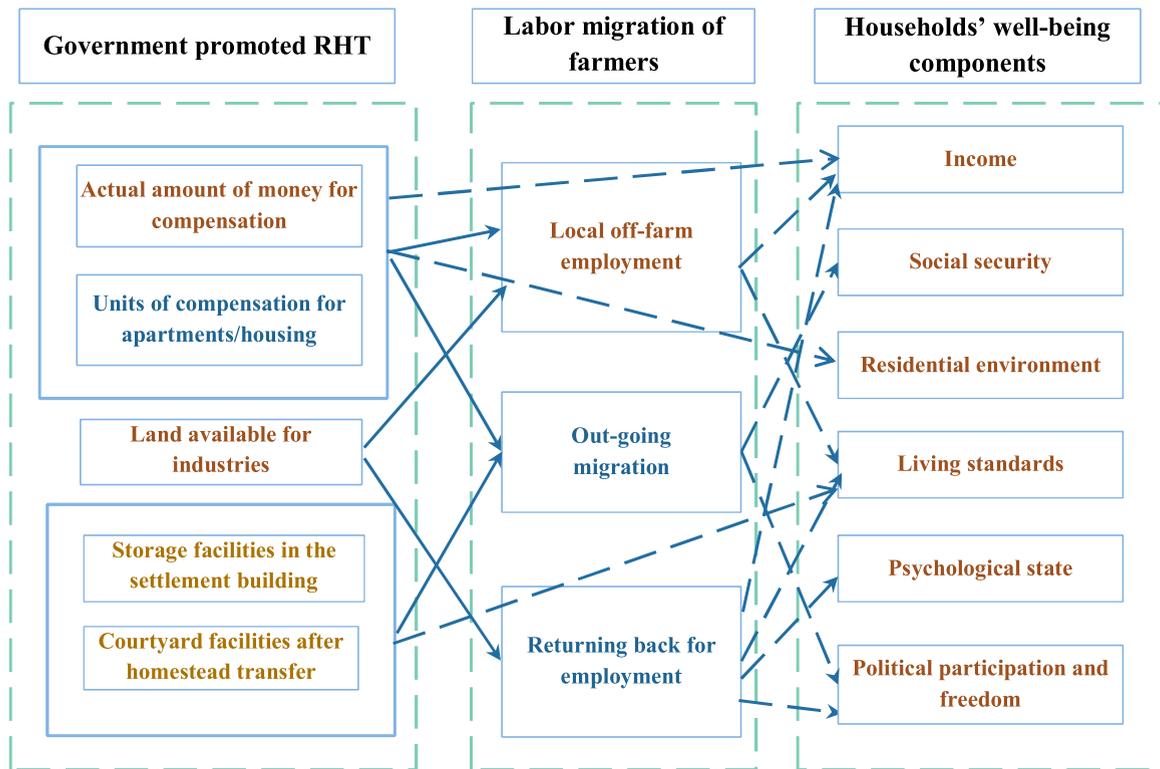


Fig. 2. The complex mechanism of RHT and its impacts on household's well-being.

In addition, their return may possibly bring about effects on household living standards, psychological state, and political participation and freedom.

H3. : Farmers who are forced to migrate to the big cities cannot obtain the city household registration. Hence, they cannot enjoy the equal and perfect medical and social security system, the equal employment treatment and even the equal children's right for education. They do not find the sense of belonging for the city or local community and cannot be integrated and effectively accepted. It may generate bad effects on their social security, citizen political rights and mental situation.

3. Empirical analysis and analytical method

Our research adopts a case study analysis, combining quantitative and qualitative methods. This approach is suitable for real life conditions and provides detailed in-depth investigation data (Krusenik, 2016). A detailed analysis of the survey sample data in the three pilot areas is helpful to grasp the impact mechanisms and realistic paths of the homestead transfer process.

3.1. Research areas

In January 2015, The Central Committee of the Communist Party of China (CPC) and the State Council launched the homestead system reform, with three significant major contents: (1) to explore the different kinds of forms of residence for all the households, (2) to establish various mechanism of paid use and paid withdrawn of rural homestead, (3) to explore the different transfer methods of rural homestead rights (Zhang et al., 2020). The RHT programs have been implemented in pilot sites in the different regions of China, with a particular emphasis on village industry development and rural revitalization.

Our research was conducted in 3 administrative villages, in 3 townships in *Wujin* District, *Jiangsu* province, then in 13 villages in 4 townships in *Yiwu* city, *Zhejiang* province, and finally in 6 villages, in 3 townships, in *Changyuan* County, *Henan* province. *Wujin*, *Yiwu* and *Changyuan* have been chosen as pilot site for the RHT program. Our areas cover three important provinces: *Zhejiang*, *Jiangsu* and *Henan*. Among them, (a) one is characterized by a developed economy (*Yiwu*, *Zhejiang* province); (b) the second one by a developing economy (*Wujin*, *Jiangsu* province); (c) and the last one located in a region with an underdeveloped economy (*Changyuan*, *Henan* province). Therefore, the data shows good representativeness. Majority of the rural residents are engaged in agricultural jobs in *Changyuan*, and mostly engaged in outside off-farm employment and agriculture jobs in *Yiwu*, and in *Wujin*. Before the RHT, they were accustomed to their rural life style, the rural residential environment was simple and not clean, the living standards were quite low and situated in a "food and clothing" level. As the social security system is not soundness in rural areas, the rural residents could not enjoy comfortable and satisfactory states, neither equal political participation and freedom.

Even though they benefit from nearly similar policy instruments, these regions show certain differences in their application (Zhang et al., 2021). The villages and towns were selected according to the regional differences in each county and city, following the principle of stratified sampling (Stratified Random Sampling, 2020). Due to the large differences between the overall samples and the strong heterogeneity of the farmers among the provinces, we first divided the overall units into three categories according to their location characteristics from the central city, and then in types or layers randomly selected sample units. We selected each township in terms of location differences from the central city, and the villages were hierarchically selected based on the differences in the near, middle and distant locations of the towns. An equal number of farmers were randomly selected for interviews in each village.

3.2. Research methods

Our research adopts a case study analysis, combining quantitative and qualitative methods. This approach is suitable for real life conditions and provides detailed in-depth investigation data (Krusenik, 2016). A detailed analysis of the survey sample data in the three pilot areas will be very helpful to grasp the impact mechanisms and realistic paths of the homestead transfer process. We asked questions about the impacts of RHT in terms of changes of well-being and employment. The survey questionnaire is reproduced in Annex 1. It was administered at one point of time to a cross-section of respondents. The research data come from the field survey conducted by graduate and undergraduate students of Nanjing Agricultural University in August 2019 in the form of door-to-door households' survey. Each selected region is subject to government promoted homestead transfer projects. That is to say, that the respondents who have participated in this survey are the rural residents in the RHT programs. We have also interviewed some farmers in *Wujin* and *Changyuan*. The information and answers we could obtain were that they cannot engage in the reforming program and can only rebuild or reconstruct their house by themselves as usual, without any compensations and other plan.

Yet all the survey questions were worded in terms of changes perceived by the respondents after the occurrence of RHT. In this sense, the cross-section data preserves the proper time order, with the independent variable (RHT) occurring in 2016 or 2017, well before the survey in 2019, when the respondents were asked about the perceived effect of RHT on well-beings and labor migration variables.

3.2.1. Analytical references and empirical approach

Our methodology is based on the theory of well-being of the feasible capability framework, (DFID, 1999; Sen, 1999, 2006). "Function" and "capability" are the core of welfare analysis under the framework of feasible capability. Sen believes that a person's feasible ability refers to the various possible combination of functional activities, is a substantial freedom to realize various functional activities. He also admits that a person's welfare status is directly related to its actual life, so it is reasonable to focus on functional activities in the evaluation of welfare status (Sen, 1987). This study considers the subjective well-being of local people after the process of RHT, and it is based on traditional measures of self-perceived well-being in the literature (Angner, 2010), where people are asked about their life satisfaction and happiness (Kahneman & Krueger, 2006). Drawing lessons from the universal functional activities (Nussbaum, 2003), and most of all about the list of measures of subjective well-being in China set by Zao (2012), we distinguish and summarize six dimensions of farmers' well-being: income status, social security, residential environment, living standards, psychological state, political participation and freedom. These dimensions are applied to understand the impacts on households' well-beings after the homestead transfer.

3.2.2. Field investigations

Through detailed visits and investigations to the pilot areas, we collected first-hand investigation materials and interview materials with relevant government departments and the target farmers to form a certain number of valid data samples. Most of the interviewed subjects are the heads of the household; if not the interviewed subjects are familiar with the situation of homestead transfer, the migration of the family members and the status of the subjective and objective well-being.

The questionnaire survey included information about the respondent, the status of family members, the annual income and expenditure of the family, and related conditions of the homestead (see Annex 2). In order to ensure the accuracy of the questionnaire, the research team conducted rigorous training for all investigators beforehand. The investigators used face-to-face interviews to ask the farmers one by one with the questionnaire contents, and filled out the questionnaire information accurately according to farmers' answers. After the interview, the questionnaires with errors and contradictions were eliminated. A total of 400 questionnaires were distributed in this survey, and 360 valid questionnaires were recovered, with an effective utilization rate of 90.0 %.

3.3. The descriptive statistical analysis of data

The involvement of the farmers in different sub-categories of off-farm activities is summarized in Table 1.

We have investigated in details the rural residents' livelihood activities after the RHT program. Our survey has covered the three areas and we have interviewed their migration status before and after RHT. Before RHT, the rural residents were originally engaged in local off-farm employment and agriculture jobs, but after RHT the livelihood activities and migration have occurred great change. We asked the rural residents if they have carried on the different sub-categories of off-farm activities after the program of RHT, this means we ignored the initial states of rural residents' migration while focus on the migration after RHT. From the table, we see that there are respectively 12, 16 and 7 residents who returned from migration for local employment after RHT: they were working in urban areas and engaged in off-farm employments. This is due to the attractiveness of the new local industries, which developed the local salaries, created more employment opportunities, reduced the transaction cost for work, and then determined to work locally. We can also find

Table 1
The different sub-categories of off-farm activities in 2018.

Livelihood activities		Wujin area	Yiwu city	Changyuan county	Total
Pre-RHT		Rural residents were engaged in local off-farm employment and agriculture jobs	Rural residents were engaged in outside off-farm employment and agriculture jobs	Majority of rural residents were engaged in agricultural jobs	
Post-RHT	Number of rural residents in local off-farm employment	104 (86.7 %)	99 (81.82 %)	75 (63.03 %)	278 (77.22 %)
	Number of rural residents who migrated for outside off-farm employment	25 (20.83 %)	33 (27.27 %)	65 (54.62 %)	123 (34.17 %)
	Number of rural residents returning from migration for local employment	12 (10.0 %)	16 (13.22 %)	7 (5.88 %)	35 (9.72 %)
	Number of rural residents interviewed in pilot areas	120 (33.33 %)	121 (33.61 %)	119 (33.06 %)	360 (100 %)

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Table 2
The policy instruments (PI) in the program of government promoted RHT (for the three areas, in 2018).

Variables name	Definition of variables	Mean ^a			Standard deviation		
		Wujin (n = 120)	Yiwu (n = 121)	Changyuan (n = 119)	Wujin (n = 120)	Yiwu (n = 121)	Changyuan (n = 119)
PI-1: Land made available for industries	1 = construction land been allocated and available to industries after RHT ^b 0 = not available for the industry	0.367	0.430	0.899	0.484	0.497	0.302
PI-2: Number of units of compensation for apartments/housing	1 = 1 unit, 2 = 2 units, 3 = 3 units and above	1.56	1.70	0.824	0.807	0.963	0.444
PI-3: Storage facilities in the settlement building	1 = settlement building yet possesses the storage facilities; 0 = otherwise	0.058	0.165	0.462	0.235	0.373	0.501
PI-4: Courtyard facilities after homestead transfer	1 = settlement building possesses the courtyard facilities; 0 = otherwise	0.025	0.033	0.235	0.157	0.180	0.426

^a Regarding the indicators of government promoted homestead transfer, there are five different variables, which indicates different aspects. For each variable there are different options as answer. By counting the answers of each farmer, and calculating the average value of the sample population, the value is obtained.

^b After the homestead transfer promoted by the government, the rural homestead has been consolidated and reallocated as construction land and then made available for the industries.

that 25, 33, and 65 rural residents migrated for outside off-farm employment after RHT. This is attributed to the fact that they have received some currency and housing compensation which accumulated the fundamental property income and can afford them to create off-farm activities in big cities. Then, 104, 99 and 75 rural residents have participated in the local off-farm employment after RHT. The construction land been allocated and available to industries after homestead transfer has reduced the residents' transaction cost for finding an off-farm activity. The differences between the three areas are linked to the scale and numbers of local industries, as well as the resource endowments and industries fundamental conditions.

Nearly 77.22 % of the households participated in local off-farm employment. It was more important in *Wujin* (86.67 %), the Sub-urban village, in *Jiangsu* province, than in the other two counties. Around 20.83 % of the households in the three towns of *Wujin* district have members who participated in out-going migration, while 10.0 % of the households were involved in returning-back activities. Out-going migration is the second important type of off-farm employment, with 34.17 % of the households involved in it. There are significant differences among the three counties. In *Wujing* County, 20.83 % of the households were involved in out-going migration, whereas in *Yiwu* this was nearly 27.27 %, and it has reached 54.62 % in *Changyuan*. Returning back for employment is the third important type, with 9.72 % of the households participating in it. Again, participation was highest in *Yiwu* County (13.22 % of households). Except that, the returning back for employment has occupied a very small proportion in *Wujing* and *Changyuan* Counties.

RHT may use different policy instruments. Judging from the implementation of the projects promoted by the governments of the three regions, the land was transferred to industries in nearly half of the villages. From [Table 2](#), we can also find that the saved construction land after RHT has been more used and available for the industries parks. The farmers in *Yiwu* have mainly obtained housing/apartments compensation, contrary to those of *Changyuan*. The government in *Wujin* pay less attention to the supplement of storages facilities and courtyard facilities after RHT, while the situation in *Changyuan* is relatively better than the other two areas. However, overall, the provident of affiliated facilities in the RHT projects has not been well arranged.

[Table 3](#) reveals that the mean values of the compensation currency is about 104,000 Yuan for the transferred homesteads, which means that, with the economic development and the improvement of regional conditions, the relative value of the homestead has arisen. The average price of a homestead in *Yiwu* was around 5000 yuan in 2003, while in 2018 it rose to about 1551,000 yuan (estimate according to the homestead area of 108 m² per household).

The relevant regional characteristics are summarized in [Table 4](#). *Wujin* is the wealthiest of the three survey regions, with the highest GDP per capita. It can thus afford the budgetary burden of both alternative housing and cash compensation. *Changyuan* has the lowest GDP per capita and its budgetary resources are limited; it therefore has the least generous compensation policies, which result in the highest proportion of respondents without any compensation and the lowest number of alternative housing units allocated as compensation. The cash compensation in *Changyuan* is the lowest among the three survey regions. In developing regions, greater

Table 3
The amounts of compensation (in Yuan).

	Mean	Standard deviation
Actual amount of money for compensation for total samples	103,765.90 ^a	472,827.50
Actual amount of money for compensation in <i>Yiwu</i>	214,909.9	801,041.4
Actual amount of money for compensation in <i>Wujin</i>	96,592.92	123,359.4
Actual amount of money for compensation in <i>Changyuan</i>	9630.252	18,068.19

^a This amount represents the average value of the monetary compensation for the transfer of homesteads received by all farmers surveyed.

Table 4
The economic status and resource endowment in the three survey regions.

	Wujin (n = 120)	Yiwu (n = 121)	Changyuan (n = 119)
Economic level (GDP), in billions of yuan (2019)	248.34	142.11	46.932
GDP/capita, yuan	171,269	107,773	59,460
Population, in thousands (2019)	1450	1317	789
Population density, per km ²	1360	1193	751
Distance to the capital of the province	141 km from Nanjing	158 km from Hangzhou	140 km from Zhengzhou
Share of agriculture in GDP, % (2019)	1.55	1.60	10.47
<i>Land endowment by type</i>			
Total land area, km ² (2018)	1066	1105	1051
Agriculture land, ha (2018)	93,053	72,764	77,533
Arable land, ha (2018)	21,720	47,229	69,217
Sown land, ha (2017; 2016 for Changyuan)	26,880	22,030	121,800
Agricultural land per capita, ha/person	0.064	0.055	0.098
Land allocation for industrial construction ^a	26.1 %	22.1 %	3.9 %

^a Authors' estimation based on Land Use Wujin (2010), Land Use Yiwu (2020), and Land Use Changyuan (2016), respectively.

wealth typically goes with a shift from agriculture to industry and services as an engine of economic growth. Consistently with this general trend, *Changyuan*, the poorest of the three regions, has the highest share of agriculture in its GDP.

The differences in regional wealth and economic performance have also resulted in differences in the percentage of land made available for the industries after RHT. The coastal regions of eastern China (which include *Wujin* and *Yiwu*) performed better than the inland regions (*Chungyan* in our sample). Since *Changyuan* possesses disadvantage locations and land economic endowment, the homestead been consolidated have been sparsely made available for the industries, and hardly made attractive enough for the social capitals and urban enterprises. Land economic endowment and locations in *Wujin* and *Yiwu* are better, and helped to attract numerous enterprises and industries, with an impact on rural residents' off-farm employment status and well-beings.

According to the statistics of implementation Plan for the Pilot reform of rural homestead system in *Yiwu* city (*Yiwu Natural Resources and Planning Bureau, 2018*), the price of the homestead area is the highest at 25,870yuan/m² and the lowest at 2, 870yuan/m² (Benchmark land price System of homestead in *Yiwu, 2018*). The improvement of macroeconomic conditions in the process of China's urbanization leads to changes in the location conditions of homesteads, and positively impacts the value of homesteads' property. The previous homesteads were just treated as residential places and security items, but with the improvement of location conditions and the awakening of public property awareness, the assets and property attributes of homesteads have gradually become prominent.

Most of the households have obtained above one unit of apartments for compensation. But the living area and comfort level of residence are different for disparate households. Many of the settlement housing have lost the storage facilities related to the production function, which means the convenience of agricultural production has been deteriorated. In addition, the possession of the courtyard has almost disappeared after the homestead transfer: the farmers lost the economic function of the homestead and house, and accordingly income from agricultural operations.

4. Results and analysis

Based on the results of our questionnaires in the three chosen areas, we have made a statistical analysis of the influence of this process on the various welfare dimensions and farmers' well-beings. We focus on the theoretical mechanism and logical plausibility of causal effects among variables. Hence, we use the descriptive statistics as the major identification strategy and focus on the changes of labor migration and household well-beings after the programs have been implemented for 2–3 years.

The questionnaire was administered at one point in time to a cross-section of respondents and did not capture explicitly the situation before and after the deciding event (RHT). Yet all the survey questions were worded in terms of changes perceived by the respondents after the occurrence of RHT (see the questionnaire in *Annex 1*). Even though the measures for social security as well as other remaining welfare are the household perceived changes, the changes of subjective feelings after the programs of RHT can also illustrate the impacts of RHT on rural residents' well-beings (*Kahneman & Krueger, 2006; Zao, 2012*).

Our results reveal that the government promoted homestead transfer has produced complex and profound effects on the households' well-beings, as well as on the welfare dimensions of local concerned populations. The change of the productive and economical function has some direct impact on the farmers' well-beings. The loss of the living function and agricultural products for the households, the reduction of residential area, the change of housing structure and form have a profound influence on the farmers' living conditions, the residential environment, and their socio-psychological status.

4.1. Homestead transfer and households' income

The first dimension of well-being is the income status of the households. In *Table 5* we have listed the agricultural and non-agricultural income of farmers after the homestead transfer.

Table 5Government promoted RHT and households' income. (Field survey data in 2019, income status of households in 2018^a).

	Household's income structure	Definition	Mean value (Yuan)	Standard deviation
Pre-RHT	Mainly the agriculture activity income	Actual amount of the household's income not systematically collected. Farming income less than 5000 Yuan/year in <i>Changyuan</i>		
Post-RHT	Compensation income	Actual amount	103,765.90	472,827.50
	Households' agricultural income	Actual amount	2744.70	9173.99
	Households' off-farm income (include salary income and transfer income)	Actual amount	134,554.20	201,230.90

^a We managed the household survey in August, 2019, while the income status data of the households were investigated in 2018. We could not obtain a household total revenue for the year in the middle of the year.

Before the RHT carried out in these areas, the actual amount of the household has not been clearly collected, while the household interview reported their farming income was less than 5000 Yuan/year in *Changyuan*. The income structure before RHT was quite simple, and the rural residents' income source were mainly coming from agriculture activities. After RHT, the government has provided currency compensation for the rural residents who moved to the new community near their hometown. In addition, they have found local off-farm employment in the nearby industry parks, built on the saved land available owing to the RHT. As a result, the total income has increased, and the income structure and income sources of the households have become more complex and more diverse. Other sources indicate that no other structural of financial measures have occurred in these areas during this period.² This trend can be confirmed in assessing the general increase of income in the study areas during the period.³

The mean value of the households' agricultural income is 2774 Yuan, while the mean value of the households' off-farm one is 134,544 Yuan. The quantitative and structural adjustments in the income status of households in the surveyed areas may be attributed to the effect of homestead transfer. In the east China the households' economic level has been vastly developed, and is now higher compared to the past decades. While the agricultural income occupies only a small part, the off-farm has become the major resource for the majority of families after homestead transfer. As explained before, the housing and monetary compensation vastly increased the property income of the households. Meanwhile, the out-going migration owing to the accumulation of property income, as well as the local off-farm work and returning migration for employment due to the establishments of nearby industries, on all sides, have increased the household livelihood channels and increased the source of off-farm incomes.

4.2. Homestead transfer and households' social security

Our results reveal that the influence of RHT on social security appears quite weak, except for education, which may be provided by the development of local clusters or public infrastructures (Table 6).

We can observe that quite a number of farmers (77.5 %) consider that RHT has had no impact on their pension security. The farmers' old age security keeps the same, even the compensation of currency and public facilities have been matched, but the pension security will still be afforded by the farmers themselves. The largest proportion of farmers (78.06 %) think that their medical security conditions haven't change compared to the previous situation. Even if there is an impact, it is very indirect and subtle. 84.72 % of farmers think that their unemployment insurance has not changed after homestead transfer, but 46.67 % believe that the education opportunity and equity of the children have improved a little.

This improvement could be linked to the setting of the industries and the improvement of the public and service facilities. The setting of industries has promoted local migration and returning back migration, there are more employment opportunities than before, the environment for employment has become extremely stable, hence the unemployment security status has improved. The accessibility for the children's education has improved owing to the construction of education facilities and public services in the local area. The medical security status of local people has also developed, and produced a positive influence on the farmers' social security. Meanwhile, RHT have facilitated the farmers' out-going migration. However, due to the more complete medical facilities and better medical services in big cities, migrant workers can purchase and enjoy better health insurance. In general, the implementation of homestead transfer policy has improved the social security of the households; the medical security status has improved, and the accessibility to education has been developed.

4.3. Homestead transfer and households' residential environment

The results reveal that the perception of the residential environment has greatly improved after the RHT, especially regarding natural environment and transport conditions (Table 7).

42.22% of farmers consider that their average living space has slightly expanded, whereas a smaller proportion consider that it has diminished a bit (33.89 %). The compensation for housing/apartments is different regarding the regions, owing to some areas are

² There is no other channel of assistance funding since the start of the RHT Program before 2018. Given limited financial capacity, the government cannot afford additional rescue funds for the households in the program areas.

³ From 2015–2019, the disposable income per Capita (including wage, operational income, property and transferrable income) of rural permanent residents was 39,529 yuan (an increase of 8.6 %) in *Yiwu* (NESD statistical Bulletin of Yiwu, 2019), 32,362 yuan (an increase of 8.5 %) in *Wujin* (NESD statistical Bulletin of Wujin, 2019), and 21,610.4 yuan (an increase of 10.5 %) in *Changyuan* (NESD statistical Bulletin of Changyuan, 2019).

Table 6
Influence of RHT on households' social security.

Change in old-age security status after RHT (Total sample: 360)					
Answer	1 =much worse	2 =a little worse	3 = no change	4 = improved a little	5 = improved a lot
Number	1	13	279	63	4
Percentage	0.28 %	3.61 %	77.5 %	17.5 %	1.11 %
Change in medical care security after RHT					
Number	1	15	281	55	8
Percentage	0.28 %	4.17 %	78.06 %	15.28 %	2.22 %
Change in unemployment insurance after RHT					
Number	0	8	305	45	2
Percentage	0	2.22 %	84.72 %	12.5 %	0.56 %
Change in education opportunity and equity for the children after RHT					
Number	0	15	161	168	16
Percentage	0	4.17 %	44.72 %	46.67 %	4.44 %

Table 7
Influence of RHT on households' residential environment.

Change of average living space per capita after RHT					
Answer	1 = big change (smaller)	2 = small change (smaller)	3 = no change	4 = small change (larger)	5 = big change (larger)
Number	11	122	70	152	5
Percentage	3.06 %	33.89 %	19.44 %	42.22 %	1.39 %
Change of comfort level of residence after RHT					
Answer	1 = much worse	2 = a little bit worse	3 = no change	4 = a little more comfortable	5 = much more comfortable
Number	2	32	66	233	27
Percentage	0.56 %	8.89 %	18.33 %	64.72 %	7.5 %
Change of satisfaction degree of natural environment after RHT					
Answer	1 = very dissatisfied	2 = a little dissatisfied	3 = ordinary	4 = fairly satisfied	5 = very satisfied
Number	3	34	76	208	39
Percentage	0.83 %	9.44 %	21.11 %	57.77 %	10.83 %
Change of air quality after RHT					
Answer	1 = much worse	2 = a little worse	3 = no change	4 = a little better	5 = much better
Number	3	45	97	182	33
Percentage	0.83 %	12.5 %	26.94 %	50.56 %	9.17 %
Change of noise pollution after RHT					
Answer	1 = much bigger	2 = a little bigger	3 = no change	4 = a little smaller	5 = much smaller
Number	2	90	99	130	39
Percentage	0.56 %	25 %	27.5 %	36.11 %	10.83 %
Change of transportation conditions after RHT					
Answer	1 = much worse	2 = a little bit worse	3 = no change	4 = improved a little	5 = improved a lot
Number	1	7	58	221	73
Percentage	0.28 %	1.94 %	16.11 %	61.39 %	20.28 %

compensated for homestead, while some other are compensated for the small property settlement or for the commodity apartments. Another reason should be attributed to the differences in the number of family members. Regarding the comfort level of residence, the response of a little more comfortable has accounted the largest proportion (64.72 %). Hence, the newly placed apartments are equipped with sound facilities, and the structure and layout have changed much, which can meet the demand of residence. Most of the farmers hold the attitude of fairly satisfied with the natural environment (57.77 %) after the homestead transfer, probably because the appearance of the villages has been completely changed. The newly re-planned and equipped villages dispose of environmental protection facilities, and the cleaned location conditions have led to an improvement in natural environment; Above half of the farmers (50.55 %) consider that the air quality has improved a little. The homestead transfer has changed the location conditions of the village, the public facilities and service facilities have been equipped, and the environment has become cleaner. 36.11 % of the farmers think that the noise pollution has slightly improved, but 25.56 % believe that it has become worse than before, regarding the peculiar local conditions. The largest proportion of farmers (61.39 %) think the transportation conditions have improved a little, while 20.28 % think they have improved a lot: the consideration of location for the re-planned centralized resettlement area have vastly improved the transportation conditions. which will make the farmers' life more convenient.

Overall, the resident environment has improved compared to the previous period, before RHT. Owing to the relocation from the old village, the rural residents have moved to a modern community, where the older apartments have been reconstructed (see Figs. 3 and 4). They can now enjoy the good quality of the residence, the more convenient transportation conditions, and the more comfortable residence environment. But they are also facing the possible deterioration of natural environment, like bad air quality and pollution, since the relocation community may be closer to the urban fringe, and deterioration of the natural environment (Figs. 5,6).



Fig. 3. The appearance of housing before RHT.



Fig. 4. The appearance of apartments after RHT.

4.4. Homestead transfer and households' living standards

The living standards have all increase, except for the food expenses, impacted by the disappearing of semi-private gardens (Table 8).

Nearly 87.78 % of the farmers think that the safety status of their house and family has improved due to RHT. This improvement may be due to the resettlement, the renewed equipment of the infrastructure and facilities, but also to the improvement of farmers' overall behavior and well-being. Almost most 91.56 % of the farmers' Engel coefficient have exceeded 30 % which is quite bigger than before. Since the farmers could previously obtain the vegetables and crops in their own garden in front and back of the homestead, they did no need to devote too much on living expenses. Now they need to buy the food on the market from the surrounding urban concentration area. We can clearly find that above half of the farmers think the cultural, educational and entertainment services have improved a little, while still 24.17 % think it has improved a lot. It is related to the positive effect of the introduction of the enterprises, the construction of cultural and entertainment facilities and the capital investment. The subjective feeling of living standard has greatly increased during the period; the level of fairly satisfied people has accounted for the largest proportion (67.22 %), whereas the number of very satisfied also slightly increased.

Owing to the relocation project of RHT by the government, the rural residents have moved to a more modern community, they have

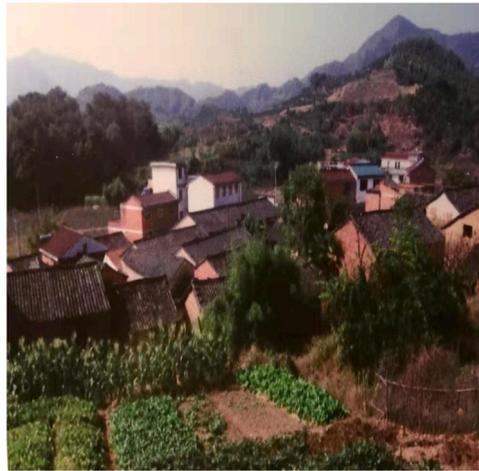


Fig. 5. the village appearance before RHT.



Fig. 6. The village appearance after RHT.

leaved the single-family housing style, as well as the traditional village courtyard housing (see pictures 5 and 6), that is to say, the rural residents have farewell with the old rural style and have adapted to the new community life. The use of courtyard economics to afford daily life has finished for rural residents, they have to build food and fuel. However, since the building of modern community, the culture and education facilities as well as the transportation conditions have improved, with an impact of the household perception of living standard.

4.5. Homestead transfer and households' psychological state

The impact of RHT appears quite strong regarding the adaptation and the sense of identity for the new community (Table 9).

Most of the farmers (75.83 %) find easy to accept the new community and resettlement life, even if is quite different than before. Quite a number believe that the homestead transfer and replacement haven't produced influence on the feelings of couples, which stay stable. 20.28 % of the couples think that their feelings and emotions have improved after the homestead transfer, which may be owing to the improvement of the newly residential environment. So, the RHT positively influenced the farmers' psychological state, with the reconstruction of rural public facilities and the public services investment and provision implemented by the local authorities.

4.6. Homestead transfer and households' political participation and freedom

The changes appear really small and residual regarding political participation and freedom (Table 10).

Table 8
Influence of RHT on households' living standards.

Changes of the safety conditions after RHT					
Answer	1 = much worse	2 = a little worse	3 = no change	4 = improved a little	5 = improved a lot
Number	1	7	36	224	92
Percentage of the total	0.28 %	1.94 %	10 %	62.22 %	25.56 %
Change of the Engel coefficient (the expense on food related to the total living expenditure) after RHT					
Answer	1 = above 59 %	2 = 50 % – 59 %	3 = 40 % – 50 %	4 = 30 % – 40 %	5 = below 30 %
Number	25	89	128	84	34
Percentage	23.33 %	24.72 %	35.56 %	23.33 %	9.44 %
Change of the degree of cultural, educational and entertainment services after RHT					
Answer	1 = major degradation	2 = small degradation	3 = no change	4 = small improvement	5 = major improvement
Number	0	9	57	207	87
Percentage	0	2.5 %	15.83 %	57.5 %	24.17 %
Change of the subjective feelings of living standard after RHT					
Answer	1 = very dissatisfied	2 = a little dissatisfied	3 = ordinary	4 = fairly satisfied	5 = very satisfied
Number	2	23	45	242	48
Percentage	0.56 %	6.39 %	12.5 %	67.22 %	13.33 %

Table 9
Influence of RHT on households' psychological state.

Changes in adaptation and sense of identity for the new community after RHT			
Answer	1 = less acceptable	2 = general	3 = more acceptable
Number	20	67	273
Percentage	5.56 %	18.61 %	75.83 %
Change in feelings of couples (relationship between husband and wife) after RHT			
Answer	1 = small degradation	2 = no change	3 = small improvement
Number	11	276	73
Percentage	3.06 %	76.67 %	20.28 %

Table 10
Influence of RHT on households' political participation and freedom.

Change in opportunity for community election after RHT					
Answer	1 = major decrease	2 = small decrease	3 = no change	4 = small increase	5 = major increase
Number	0	2	255	693	4
Percentage	0	8.89 %	70.83 %	19.17 %	1.11 %
Change in opportunity of decision on collective affairs after RHT					
Answer	1	2	3	4	5
Number	1	33	257	64	5
Percentage	0.28 %	9.17 %	71.39 %	17.78 %	1.39 %

The largest percentage of farmers think that their opportunity for community election has not changed, even if the homestead transfer still produced some weak positive effect (19.17 %). This modest increase may be owing to the reconstruction of the village collective organizations. Quite a number of farmers consider that their opportunity of decision on collective affairs has not change before and after the homestead transfer, while some of them believe that their opportunities has increased a little. Even the reconstruction of rural public facilities and the public services investment and provision were effectively implemented by the local authorities, the democracy institution construction haven't been involved in the RHT program; thus, the RHT had very limited influence on their political participation and freedom. The homestead transfer has produced a weak positive effect on the farmers' participation of political issues owing to the more standardized management of the village.

5. Discussion

Our results reveal the balanced effect of the Chinese government homestead transfer on the households' well-being, and allow us to explore the relationship between RHT on the one hand, and labors' migration, households' income, social security, living standard, residential environment, emotional aspects, democracy and freedom status on the other. The main contributions of this paper are as follows: (1) Comprehensively reveal the impact mechanisms of Government promoted RHT on household's wellbeing; (2) Pioneeringly revealing the respective contributions of the direct and indirect (via labor migration) channels to these changes.

According to our case studies the RHT policy has increased the farmers' off-farm income via compensations in terms of money and

housing, which have induced them to rent and sell some of the extra apartments (Table 5). This result contrasts with previous researches, which pointed the fact that high subsidy led to poor livelihoods and income poverty in the long term (Li et al., 2019). Our findings reveal that the RHT project achieves another mechanism for non-agricultural income growth by promoting the diversified migration of rural labors. As illustrated above, the policy tools in the RHT projects have mainly promoted the labors' out-going migration by the property income accumulation effect and the promotion of labors' local off-farm work as well as the returning back migration due to the setting of industries. Therefore, the theoretical hypothesis H1 of this paper is verified.

The setting of industries has poorly improved the unemployment security status (Table 6). More than 50 % of the farmers think that the accessibility for children's education has improved, but the medical security status remains mainly stable, while the monetary compensation has provided the accessibility of the farmers to the medical insurance and also old-age security. Migrant workers can purchase and enjoy better health insurance due to the more complete medical facilities and better medical services in big cities, and have access to education for their children. At the same time, the setting of industries has promoted local and returning back migration, there are more employment opportunities than before, the environment for employment has become extremely stable, and hence the unemployment security status has improved. Therefore, the theoretical hypothesis H3 is verified.

According to Table 7, owing to RHT, the original detached house of the households has moved to a higher standard apartment and suit. This change of housing structure and room facilities, and even of function of the apartments, has had a positive influence on the average living space per capita and on the farmers' comfort level of residence. Whereas previous researches illustrated that the homestead replacement and concentrated residence are deteriorating the residential environment of farmers (Li et al., 2019;), our findings reveal another mechanism. The setting of industries and the agglomeration of enterprises have produced positive effect on the local transportation in our areas, due to the new resettlement of apartments always located in the surroundings of the center village or town. The improvement of the perception of air quality may be attributed to the environmental remediation after concentrated residence, and the community greening, whereas the concentrated residence areas are located a little far away from the previous natural villages and have been replaced and cleaned. This is inconsistent with the theoretical hypothesis, but reveals a new impact mechanism which deserves for our further research.

Table 8 shows that RHT has improved the living standard of the households, except for the reduction of livestock farming that has pushed farmers to devote more expenditure on food. The concentration in resettlement areas and industrial infrastructures has produced positive safety status, and the government has also invested and supplied infrastructure, including cultural, sports, and recreational facilities. The expansion of the scale of public services has also greatly improved the efficiency of public goods supply. At the same time, the promotion of out-going migration to the big cities has provided access to better public services and to the richness of cultural and entertainment services. Due to the investment and layout of the government's concentrated public services and infrastructure, the migrants of local off-farm work and returning back have also enjoyed the richness of entertainment. Therefore, the theoretical hypothesis H2 of this paper is verified.

According to Table 9, the various actions linked to homestead transfer have enhanced the identity and improved the psychological state of the farmers. Our findings are different from previous studies who claimed that RHT programs have broken the traditional social connection and clan network in the original village (Li et al., 2019; Shangguan et al., 2017;), and that farmers failed in establishing a new social network in the regrouped village. We found that the sound collective organization has enhanced the cohesion of villagers and the happiness of the family. They engaged in non-agriculture economic activities proximate to their hometowns, which increased the employment in villages and relieved social issues like separation of families, with positive effects on the sense of identity of the farmers. The setting of industries has absorbed a lot of farmers' local migration: with the returning back migration they have promoted the family members reunion and integration, and ease the possibility to honor the elderly and take care of the children. This has brought about positive influence on the family relationships. In addition, the already good social network and connections in the local areas has promoted and enhanced the sense of identity of the farmers. Therefore, the theoretical hypothesis H2 is verified.

However, Table 10 reveals that these changes have had little impact on public participation mechanisms and community election of the farmers, revealed new mechanism and influence paths. The active publicity of the homestead reforming policies and the ongoing mobilization have produced positive effect on the opportunity of community affairs decision. The setting of industries and returning back migration had little influence on community election, as well as the opportunity of community affairs decision. Therefore, the theoretical hypothesis H3 is verified.

6. Conclusion and policy implications

Based on a detailed applied study in three pilot areas, our article brings responses about the process of government promoted homestead transfer in China and its direct and indirect impacts on the well-being of local rural populations, From the results of the data statistics and analysis, we found that the transfer has directly influenced the farmers' agricultural income and off-farm income, and indirectly influenced their income though labors' migration. RHT has had a direct positive impact on the farmers' residential environment, and an indirect positive influence on their social security through the labors' migration. It has influenced the farmers' living standard and their psychological condition, directly and indirectly, but its influence on the political participation and freedom of the households was minor.

We can draw a few policy implications from our empirical results:

- (1) The direct investment, the reconstruction of rural public facilities and the public services investment and provision must be given attention and be effectively implemented by local authorities. The indirect labors' migration brought by the homestead transfer on the farmers' well-beings must be taken seriously. Especially the housing densification and the saved land available

for the industries will vastly induce the farmers' local and off-farm migrations, as a significant transferable path for the huge surplus of labor in rural areas in China. This could not only solve the employment problem of rural surplus labor, but also had a positive impact on farmers' living standards, income status and psychological states.

- (2) The government needs to supply and support the industry in the potential rural areas. On one side, as a service provider of public services and infrastructure, which may promote the improvement of residential environment and living standards. On the other hand, providing policy support to attract talents, youths returning to their hometowns for employment and entrepreneurship, through the improvement of the social security of rural residents and the economic development of rural areas.
- (3) Peculiar attention is required about the household social security, psychological state and political participation and freedom. The government should not only provide the sound public services in the regrouped communities, but also need to launch various public activities and democratic conference. Efforts are needed to build a bond of exchange and communication between community residents, create more channels and opportunities for residents to express their democratic rights, and finally increase the sense of participation, happiness and gain of transferring farmers.

To finish, one has to notice that our study has some limitations. It's not exhaustive and it is based on three representative cases as an example. The questionnaires were applied on a single date. We didn't do any econometric work because of the diversity of the data. Further studies should be carried out in this direction, and econometric experiments and works need to be strengthened on these questions.

Declaration of Competing Interest

The authors declare no conflict of interest. All authors have read and agreed to the published version of the manuscript.

Acknowledgements

The data for this study came from a survey carried out in 2019-2021 with financing support from the China Scholarship Committee (CSC, grant number 201806850079) and from the Laboratory SADAPT, from INRAE and Paris-Saclay University. The authors want to thank to Professor Shuyi Feng for very useful comments and suggestions on formation of this paper, and the students of the University of Nanjing Agriculture, for their valuable help.

Annex 1. : QUESTIONNAIRE

1) Status of the compensations related to the government homestead transfer.

(1) In case of monetary compensation, how much did the government compensate for the farmers?

The actual amount of money the farmer has obtained.

(2) In case of compensation in terms of housing, how many houses and rooms did the farmer obtain from the government?

(3) Did the new housing/apartments possess the storage facilities?

(4) Did the new housing/apartment possess the courtyard economy?

(5) Where some arrangements and construction land for the industries launched after homestead transfer?

2) Migration and off-farm employment.

(1) Did some members of the household participate in the local off-farm employment?

(2) Did some members of the household participate in the migration employment?

(3) Did some returning migrants in the family engage in off-farm activities?

3) Income situation of the farmers.

(1) Total net income of the family?

(2) Farming income of the family?

(3) Non-farming income of the family?

4) Welfare status: change of the household living standards after homestead transfer.

(1) Personal and property safety after homestead transfer (1 = substantially worse, 2 = slightly worse, 3 = no change, 4 = slightly better, 5 = substantially better).

(2) Share of food expenditure in total family expenses after homestead transfer (1 = more than 50% – worst, 2 = 50%–59%, 3 = 40%–50%, 4 = 30%–40%, 5 = less than 30% – best).

(3) Level of cultural, educational and entertainment services after homestead transfer (1 = substantially worse, 2 = slightly worse, 3 = no change, 4 = slightly better, 5 = substantially better).

(4) Subjective feeling of living standards after homestead transfer (1 = unsatisfactory, 2 = somewhat unsatisfactory, 3 = average, 4 = satisfactory, 5 = highly satisfactory).

5) Changes in perception of the residential environment after homestead transfer.

(1) Average space per person in the family after homestead transfer (1 = substantially smaller, 2 = smaller, 3 = no change, 4 = somewhat larger, 5 = substantially larger).

(2) Comfort level of housing after homestead transfer (1 = substantially lower, 2 = somewhat lower, 3 = no change, 4 = somewhat higher, 5 = much higher).

(3) Subjective satisfaction with the natural environment after homestead transfer (1 = dissatisfied, 2 = somewhat dissatisfied,

3 =neutral, 4 =somewhat satisfied, 5 =very satisfied).

(4) Subjective evaluation of air quality after homestead transfer (1 =much worse, 2 =somewhat worse, 3 =no change, 4 =somewhat better, 5 =much better).

(5) Subjective evaluation of noise pollution after homestead transfer (1 =much more, 2 =somewhat more, 3 =no change, 4 =somewhat less, 5 =much less).

(6) Subjective evaluation of the transportation services after homestead transfer (1 =much worse, 2 =somewhat worse, 3 =no change, 4 =somewhat better, 5 =much better).

6) Change in social security after homestead transfer.

(1) Change in old-age security after homestead transfer (1 = much worse, 2 = somewhat worse, 3 =no change, 4 = somewhat better, 5 = much better).

(2) Change in medical security after homestead transfer (1 = much worse, 2 = somewhat worse, 3 =no change, 4 = somewhat better, 5 = much better).

(3) Change in unemployment security after homestead transfer (1 = much worse, 2 = somewhat worse, 3 =no change, 4 = somewhat better, 5 = much better).

(4) Change in education opportunities and equality of access for the children after homestead transfer (1 = much worse, 2 = somewhat worse, 3 =no change, 4 = somewhat better, 5 = much better).

7) Psychological and emotional aspects after homestead transfer.

(1) Subjective feeling of acceptance and sense of identity in the new community after homestead transfer (1 = hard to adapt, 2 =neutral, 3 = easy to adapt).

(2) Change of marital relationship after homestead transfer (1 = worse, 2 =no change, 3 = better).

8) Change in political participation after homestead transfer.

(1) Change in opportunities for participating in community elections after homestead transfer (1 = much worse, 2 = somewhat worse, 3 =no change, 4 = somewhat better, 5 = much better).

(2) Change in opportunities for decision making in collective affairs after homestead transfer (1 = much worse, 2 = somewhat worse, 3 =no change, 4 = somewhat better, 5 = much better).

ANNEX 2. : Statistical signification

Variables	Definition of the variables	Mean	Stand error
Household agriculture income	The actual amount of agricultural income	2744.70	9173.99
Household off-farm income	The actual amount of off-farm income	134,554.20	201,230.90
Security conditions	1 = improved a lot, 2 = improved a little, 3 = no change, 4 = variation a little, 5 = variation a lot	1.89	0.67
Engel coefficient	1 = above 59%, 2 = 50%– 59%, 3 = 40%– 50%, 4 = 30%– 40%, 5 = below 30%	3.04	1.07
Degree of cultural, educational and entertainment services	1 = improved a lot, 2 = improved a little, 3 = no change, 4 = variation a little, 5 = variation a lot	1.97	0.71
Subjective feelings of living standard	1 = very satisfied, 2 = be fairly satisfied, 3 = ordinary, 4 = a little satisfied, 5 = very dissatisfied	2.14	0.74
Change of average living space per capita	1 = change much bigger; 2 = change a little bigger; 3 = no change; 4 = change a little smaller; 5 = change much smaller	3.05	1.00
Comfort level of residence	1 = getting much worse, 2 = getting a little bit worse, 3 = no change, 4 = a little more comfortable, 5 = Much more comfortable	3.70	0.76
Satisfaction degree of natural environment	1 = very satisfied, 2 = be fairly satisfied, 3 = ordinary, 4 = a little satisfied, 5 = very dissatisfied	3.68	0.84
Air quality	1 = much better, 2 = a little better, 3 = no change, 4 = a little worse, 5 = much worse	3.55	0.86
Noise pollution	1 = much smaller, 2 = a little smaller, 3 = no change, 4 = a little bigger, 5 = much bigger	3.31	1.01
Transportation conditions	1 = improved a lot, 2 = improved a little, 3 = no change, 4 = variation a little, 5 = variation a lot	4.00	0.68
Old-age security	1 = improved a lot, 2 = improved a little, 3 = no change, 4 = variation a little, 5 = variation a lot	2.85	0.50
Medical care security	1 = improved a lot, 2 = improved a little, 3 = no change, 4 = variation a little, 5 = variation a lot	2.85	0.52
Unemployment insurance	1 = improved a lot, 2 = improved a little, 3 = no change, 4 = variation a little, 5 = variation a lot	2.88	0.40
Education opportunity and equity for the children	1 = improved a lot, 2 = improved a little, 3 = no change, 4 = variation a little, 5 = variation a lot	2.48	0.65
Adaptation and sense of identity for the new community	1 = more acceptable, 2 = general; 3 = unacceptable	1.30	0.57
Feelings of couples	1 = improved a lot, 2 = no change, 3 = variation a lot	1.83	0.45
Opportunity for the community election	1 = increase a lot, 2 = increase a little, 3 = no change, 4 = decrease a little, 5 = decrease a lot	2.87	0.57
Opportunity of decision on collective affairs	1 = increase a lot, 2 = increase a little, 3 = no change, 4 = decrease a little, 5 = decrease a lot	2.87	0.61

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