

## Article

# Evaluating Poverty Alleviation by Relocation under the Link Policy: A Case Study from Tongyu County, Jilin Province, China

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**Abstract:** Land, nature, and the social environment in contiguous poor regions are harsh and difficult to change. The poor adaptive capacities of the socio-ecological systems of these regions are the main causes of deep, persistent poverty. In February 2016, the Chinese government issued a policy proposing to promote poverty alleviation by relocation (PAR) by means of the “Linking increases in urban construction land with decreases in rural construction land” policy (or simply, the “Link Policy” or LP), which intends to realize the sustainable social and economic development of local villages. Since then, many pilot projects have been carried out across the country based on local resources, environment, and economic development; however, few related studies on these cases have been conducted. After a review of poverty alleviation policies, this paper first introduces the unsustainable conditions of poor rural areas and the implications and advantages of PAR under the Link Policy; we then analyzed the complete PAR process, including formulation, implementation, and completion, by taking Tongyu County in Jilin Province as an example. The study found that the “whole village relocation” model practiced in Tongyu County was relatively successful in terms of improving the living environment, income, and public services of local villagers. On the other hand, there were three main problems: first, many follow-up industries were dominated by the village collectives and heavily dependent on government support or subsidies; second, the newly built village faced the dilemma of “re-hollowing” due to the out-migration of young people and the aging population; third, it was difficult to achieve a true requisition–compensation balance of farmland.

**Keywords:** targeted poverty alleviation; relocation; Link Policy; whole village relocation; contiguous poor areas; sustainable community; Jilin; China

## 1. Introduction

Poverty is a worldwide problem, especially in developing countries and transitional countries [1–5]. Economists, sociologists, and geographers have studied poverty from different and distinct disciplinary perspectives [6–13]. Numerous empirical studies have shown that sustained economic development can solve problematic poverty [14,15]. With rapid economic development, China’s rural poor population dropped from 250 million in 1978 to 70.17 million in 2014 [16]. However, empowering poor people to share the achievements of high-speed economic growth is also the key to solving the problem of poverty [17], even as China enjoys sustained economic growth. Both the academic community and the government are aware that it is impossible to raise the remaining 70 million poor people out of poverty by liberalized economic development alone [16,18]. In order to eliminate extreme poverty completely, the Chinese government has proposed five transnormal measures (Wuge Yipi Cuoshi) of targeted

poverty alleviation (TPA), of which poverty alleviation by relocation (PAR) is a crucial component, especially in areas where local resources and livelihoods cannot provide adequate living standards for local residents.

Taking Tongyu County of Jilin Province as an example, this paper studied the complete process of PAR, including its formulation, implementation, and completion, with the purpose of examining the actual effects of PAR, and summarizing both successful experiences and deficiencies that need to be improved. This paper consists of five parts. The first part reviews substantial poverty alleviation policies all over the world. The second part introduces the unsustainable conditions facing poor rural areas, and the proposal and implementation of PAR under the Link Policy. The third part presents the natural and socioeconomic status of the study area and the methods of data collection. The fourth part analyzes the local implementation plan of PAR and studies the specific process of policy implementation by taking Lujia Village of Tongyu County as an example. The fifth part examines the multiple effects after the completion of the project in terms of the three levels of the county, village collectives, and farmers. The sixth part summarizes the paper's main conclusions.

## 2. Review of Poverty Alleviation Policies

Many countries have gained a wealth of experience in eliminating poverty. Among developed countries, the United States has adopted various welfare policies since the 1930s to solve the problem of relative poverty in society [19–22]. After World War II, Italy carried out poverty alleviation work in the southern region to address the imbalance in regional socio-economic development [23–25]. Developing countries and transitional countries have adopted other measures to solve the problem of rural poverty. Generally speaking, in the 1950s–1970s, most developing countries followed a development path based on industrialization through import-substitution, in which the wellbeing of the population was promoted by the search for social justice [26]. Import-substitution development had better performance at moderating inequalities, but its poverty alleviation effects were far from ideal, since it did not make full use of the comparative advantages of developing countries. Since the 1980s, especially after the end of Cold War in 1991, such neoliberal reforms as economic liberalization, privatization, and political decentralization have been promoted inexorably all over the world. Migration, non-farm and informal employment, and remittance have become essential to the survival of poor in most developing countries. Targeted monetary transfers to the extremely poor have become the dominant policy for poverty alleviation in developing countries, to allow everyone to “play the market game” [26]. Spatial poverty alleviation programs in developing countries have been neglected to a large extent, although rural economies everywhere are in depression and crisis, with low price, declining public supports, rural exodus, increases in rural suicides, and so on [27].

India has actively carried out anti-poverty work since its independence. In the 1960s India launched a “green revolution” to increase food production, and financial support was provided for the development of the rural economy. Over the last two decades, the decline of poverty has been slower than economic growth in India, owing to its liberalized journey. Moreover, due to insufficient policy implementation and social injustice caused by remnants of the caste system and religious differences, India's patterns of poverty have shown consistent intergroup differences over time [28,29]. To promote the development of underdeveloped areas, Brazil has since the 1960s implemented a “growth pole” strategy aimed at helping the poor escape poverty through a “trickle-down effect”, but this has triggered a more serious wealth polarization problem. Since the 1990s, Brazil has actively reformed its income redistribution policy, guaranteed a national minimum income, implemented social assistance programs, and the poverty issue has been improved [30–33]. The famous “Oportunidades” program, which has been implemented in Mexico since 1997, was part of its overall neoliberal reform agenda [26]. The Oportunidades program aims to break the intergenerational transmission of extreme poverty through human capital investment by conditional cash transferes for education, health, etc. The Oportunidades program was carefully thought-out and designed well, and has been replicated and promoted in many countries by the World Bank [34–36]. However, Boltvinik pointed that the

replication of Oportunidades program requires the pre-existence of universalistic networks of basic services [26]. Owing to its socialist regime and urban–rural dual system, China’s poverty alleviation policies have many unique features, such as equalitarian distribution of farmland and rural residential land, strict family planning, pro-peasant, countryside, and agriculture support, spatially targeting backward areas, and incipient welfare society building. Zhou et al. (2018) summarized in detail of the stages and approaches of poverty alleviation in China since 1949 [37].

In November 2015, the Chinese central government held a conference on poverty alleviation work and issued the “Decision on Winning the Tough Battle in Poverty Reduction”, heralding that China’s poverty alleviation had entered a new stage. In order to eliminate extreme poverty completely, the Chinese government has proposed five transnormal measures of TPA, of which PAR is a crucial component, especially in areas where local resources cannot provide adequate living standards for local residents (Yifang Shuitu Yangbuqi Yifang Ren) [38]. According to “The 13th Five-Year Plan for Poverty Alleviation Relocation” [39] published by the National Development and Reform Commission on 22 September 2016, the Chinese government decided to relocate 9.81 million registered and archived rural poor (Jiandang Lika Pinkun Hu) from the harsh living environment, bad living conditions, and poor employment opportunities that they faced; the 6.47 million non-poor people living with them were to be relocated simultaneously. By the end of 2017, the Chinese central government had relocated 5.89 million people living in rural poverty [40].

The PAR, on the face of it, is just a livelihood project, which has improved the production and living conditions of relocated residents. However, it is also a way to expand the steady growth of domestic demand under the new normal of economic development. From the perspective of investment, the total direct investment in relocation will reach 560 billion yuan, which will provide many employment opportunities for the villagers [37]. From the perspective of consumption, relocation will have a huge positive effect on household building materials and household appliances, and the continuous driving of consumption cannot be underestimated.

The practiced resettlement modes of PAR are divided into two types: centralized resettlement and decentralized resettlement (only registered and archived poor villagers are moved). Decentralized resettlement implements the principle of relocation by job opportunity and industry base to ensure that the relocated poor can procure new livelihoods. However, this policy ignores three major issues. First, the proportion of registered and archived poor villagers with illness and disability is as high as 40% and 14%, respectively; few jobs are suited for them [41]. Second, the original village communities have been torn apart, the relocated poor villagers have lost most of their social relationships. Third, the infrastructure and public services for those villagers left behind are still in need of improvement, which may lead to a drain on financial resources. Therefore, decentralized resettlement has been considered a less suitable means of relocation [42]. Centralized resettlement, by contrast, is the relocation of the whole village. Through land reclamation, a construction land index is compiled and traded so that more resettlement funds are obtained. Moreover, disabled residents can be better taken care of by sustaining their original community, and the cost–benefit ratio of investing in infrastructure and public services will be better. According to the latest planning, centralized resettlement is the main resettlement method, and the number of people resettled in this way accounts for 76.4% of PAR.

However, centralized resettlement also has potential issues, such as the lack of job opportunities [43], the violation of property rights [44], harm to small production modes [18], and rising cost of living, which are the concerns of this paper.

### 3. Background of PAR

#### 3.1. Eliminating Poverty

In 2018, the Chinese government first proposed its “Two Centenary Goals” (Liangge Yibai Nian Fendou Mubiao), which are to finish building a moderately prosperous society in all respects by the time the Communist Party of China celebrates its centenary in 2021, and to turn China into a modern

socialist country that is prosperous, strong, democratic, culturally advanced, and harmonious by the time the People's Republic of China celebrates its centenary in 2049. Alleviating the poverty of the rural poor is the most difficult task in the quest to build a moderately prosperous society in all respects and thus achieve the first centenary goal [45]. In order to build a moderately prosperous society in all respects, the following goals need to be achieved by 2020. The goal that the rural poor have “enough food, enough clothing, adequate compulsory education, safe housing, and medical services” will be fully realized. The growth rate of per capita disposable income of rural residents in poverty-stricken areas will be higher than the national average, and the main indicators of basic public services will be close to the national average [39]. The rural poor will shake off poverty under China's current standards, all poverty-stricken counties will disappear, and overall regional poverty will be resolved [45]. Poverty alleviation is now a major task that the Chinese government has been working hard to promote. All levels of government have their own poverty alleviation tasks. The effectiveness of poverty alleviation is also an important indicator for local officials.

### 3.2. *The Unsustainable Conditions in Poor Rural Areas*

Most of the rural poor in China live in areas with poor living conditions, fragile ecological environments, and frequent natural disasters [10,16]. With poor living and production conditions, poor land, serious desertification, soil erosion, and lack of a good industrial base, agricultural production is basically dependent on the weather, and the villagers face formidable difficulty in increasing their income. Furthermore, infrastructure and basic public service facilities such as roads, drainage, housing, education, medical treatment, sports, and other facilities are outdated and deteriorating [46].

Geographically, a “space poverty trap” exists in areas where local resources cannot provide adequate living standards for local residents [14,47–51] because of the low carrying capacity of resources and environment, frequent natural disasters, inconvenient transportation, limited access to information, shortage of talent, imperfect markets, and the interaction between social and ecological systems. After several rounds of poverty alleviation programs and development, the situation has not changed fundamentally.

### 3.3. *Relocation as a Transnormal Measure*

Relocation is one of the five transnormal measures of the TPA strategy implemented by the central government. The five measures include (a) supporting poor households who have the ability to work and possess productive skills to develop their industries and helping them solve employment difficulties; (b) relocating 10 million of the poor in remote areas with harsh living conditions to more hospitable villages or towns (in essence, PAR); (c) implementing ecological compensation policies; (d) strengthening education to prevent the intergenerational transmission of poverty; and (e) helping the physically disabled and social groups with special difficulties out of poverty through guaranteeing social security.

Relocation is mainly aimed at poor rural areas with harsh natural conditions, poor living conditions, serious lack of development conditions, and with a high population of registered and archived villagers in poverty. China has planned to relocate about 10 million registered and archived poor villagers to lift them out of poverty by 2020 [39]. The Chinese government believes that by relocation, the housing security of the relocated migrants will be effectively guaranteed; basic living needs, including safe drinking water, electricity, travel, and communication, will be met, and other fundamental public services, such as education and medical treatment, will be provided; the ecological environment in the emigrated area will significantly improve on one hand, follow-up industries will develop in the resettlement area on the other, and the relocated migrants will be able to step out of their poverty-stricken condition through a stable income and significantly improved living standards.

### 3.4. PAR Fueled by Link Policy

The function of poverty alleviation has not reached a consensus in terms of the tier of government that should perform it [52]. On one hand, some claim that central government should conduct poverty alleviation efforts because of the inter-jurisdictional mobility of the population and productive factors [53]; on the other hand, others argue that the spatial dimension would make subnational governments more efficient, because proximity supposedly makes authorities more sensitive to the issues [54]. Earlier results have shown that decentralization's effects on poverty alleviation, income disparities, and community development are contingent on governance quality [55–57]. In our opinion, the most difficult question for poverty alleviation in developing and transitional economies is how to share developmental gains and coordinately solve the social and spatial issues between urban–rural, different regions, and various population subgroups. PAR fueled by the Link Policy is an important new poverty alleviation policy being tried by China to achieve this most difficult task.

Since the reform and opening-up policy (Gaige Kaifang) was launched by the Chinese government in 1978, urbanization and industrialization have been vigorously promoted. This has led to the rapid development of Chinese society and the improvement of people's living standards. In the early stages of development, labor and land for construction were highly accessible. However, with the increase in China's population and the loss of cultivated land, the Chinese government has placed increasing importance on food security. The Outline of the National Plan for Overall Land Use (2006–2020) proposed adherence to the “red line” of 1.8 billion mu (120 million ha) of cultivated land. On one hand, China is still in the process of urbanization and industrialization, which continues to require a large amount of land for construction. On the other hand, although the rural population is decreasing, the amount of land for rural construction has increased significantly because of the phenomenon of “building new housing without demolishing the old” in rural areas. Rural hollowing is very common in the Chinese countryside. This process results from the imperfect system of homestead management. Homestead management only stipulates how to approve and build a new homestead, but does not stipulate how to withdraw a homestead. In order to resolve this land use problem, the Ministry of Land and Resources issued and experimented with a land use policy titled “Linking increases in urban construction land with decreases in rural construction land (Chengxiang Jianshe Yongdi Zengjian Guagou)” (or simply, the “Link Policy,” or LP) in 2005 [44,58,59]. Under this scheme, farmers are relocated from scattered villages to concentrated communities while their original homesteads are reclaimed into farmland, thus enabling the transfer of construction land quotas to cities [60]. In 2008, the Chinese government officially enacted a general regulation on the LP which stipulated that it must be implemented within the county-administered boundary in order to promote industrial diffusion and regional balance [61].

In contiguous poverty-stricken areas, due to the low level of county economic development and insufficient demand for construction land quota, LP is difficult to implement. In economically developed areas, the demand for construction land quota is very strong, while the total amount of rural collective construction land is insufficient. Therefore, there exists a potential supply–demand gap concerning land for construction, which could be filled between contiguous poverty-stricken and economically developed areas.

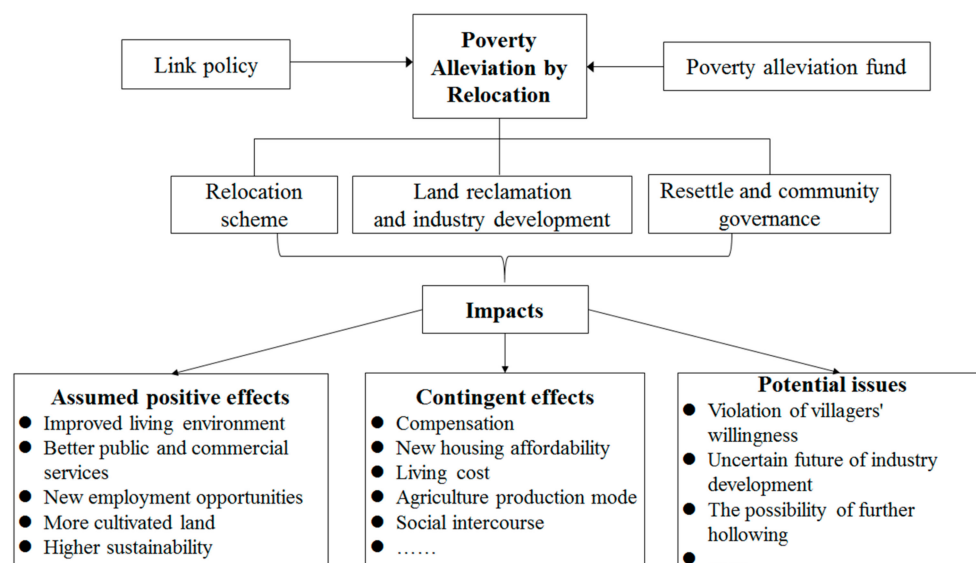
Land, nature, and the social environment in contiguous poor regions are difficult to change. Essentially, the goal of population migration is to find more suitable habitat space. PAR is a community reconstruction project that involves not only housing resettlement and construction of both infrastructure and public service facilities, but also re-employment and entrepreneurship, community management, cultural inheritance, and many other aspects of the relocated population. It also entails demolition and land reclamation. PAR is essentially the optimization or reorganization of the regional man–land areal system, which has far-reaching impacts and effects. In other words, PAR is devoted to realization of the sustainable social and economic development of local villages.

The Chinese government began to experiment with PAR in 1983 mainly in the “Three West” (Sanxi Diqu) region (Dingxi, Hexi in Gansu Province and Xihaigu in Ningxia) [62], and achieved

some positive results. For example, it was able to solve the problems of food and clothing for the people in the above areas [62]. In 2001, pilot projects were carried out in four provincial administrative units, including Inner Mongolia [63], Guizhou [64], Yunnan, and Ningxia [65], and were later extended to 17 provincial administrative units [66]. In November 2015, a working conference on poverty alleviation and development was held in Beijing, and the “Decision on Winning the Strong War of Overcoming Poverty” was issued. This decision marked that China’s poverty alleviation and development undertakings had entered a new stage of overcoming poverty. However, the implementation of PAR has faced serious financial shortages.

In February 2016, the Ministry of Land and Resources promulgated a notice on actively supporting poverty alleviation and the PAR by using LP flexibly, which stipulated that LP can be practiced within provincial administration boundaries. In 2018, the General Office of the State Council issued two measures informed by LP: the national integrated management measures for supplementing arable land across provinces and regions, and the inter-provincial transfer of surplus land quota. These documents allowed the transfer of surplus construction land quota in the “three districts and three states”—the specific areas include the Tibet Autonomous Region, Four Cities in Southern Xinjiang, the Tibetan ethnic areas in Sichuan, Yunnan, Gansu, and Qinghai Provinces, Liangshan Prefecture of Sichuan province, Linxia Prefecture of Gansu province, and Nujiang Prefecture of Yunnan province—and other deep-poverty-stricken counties to be transferred beyond the provincial administration boundary. The scale of construction land quota transfer in each county is determined by the Ministry of Land and Resources, which collects the surplus quota according to a certain price and then sells the quota of savings to the provinces where the quota of construction land is undersupplied. The yield profit is allocated by the Ministry of Land and Resources to support poverty-stricken areas where financial resources are short. In this way, the predicament that construction land quota is difficult to sell in poverty-stricken areas with abundant rural construction land has been solved, and the problem that construction land quota is hard to buy in areas where rural construction land is scarce has also been solved. Moreover, the local governments in poverty-stricken areas can not only complete the task of poverty relocation, but can also obtain large amounts of funds from it to enrich local finances.

Therefore, PAR is fueled by LP essentially to use differential rent to solve the problem of insufficient funding for poverty alleviation programs. Through reasonable compensation, land reclamation, and centralized resettlement, the location conditions of poor villages can be improved, the employment opportunities and livelihood sources of the poor can be reconstructed, the living spaces and lifestyles of the poor can be reshaped, and the fragile natural environment of the out-migration area can be optimized [67]. In this way, the problems of poverty and ‘agriculture, countryside, and farmers’ may be fundamentally solved. However, there are also some contingent effects and potential issues (Figure 1). In recent years, many empirical studies have been carried out separately on the policy of PAR [68–70] and LP [42,50,65,71,72]; however, few have probed into the integrated practice of the two policies.

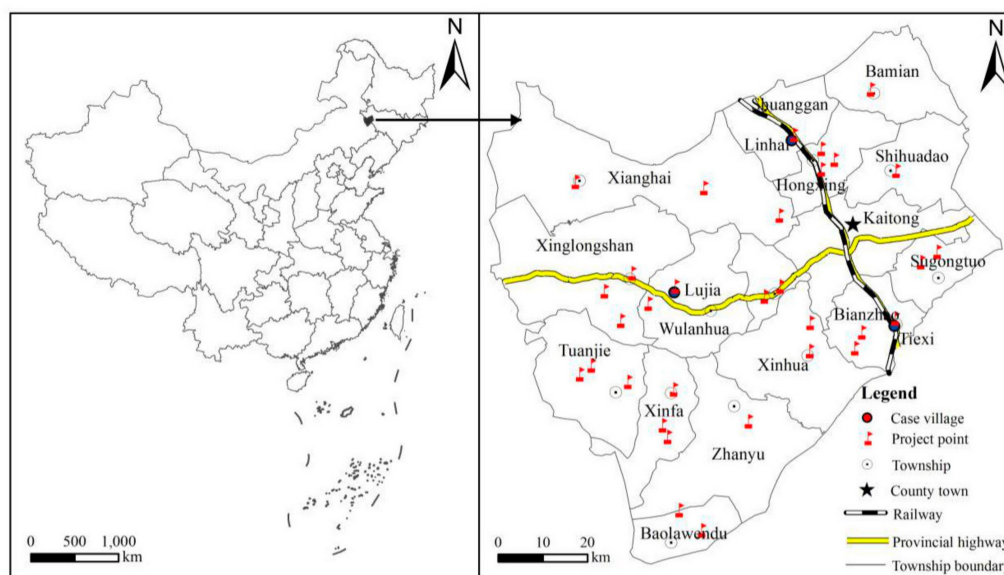


**Figure 1.** Framework for evaluating poverty alleviation by relocation (PAR) under the Link Policy.

## 4. Materials and Methods

### 4.1. Study Area

Tongyu County is located in the western part of Jilin Province, which lies at the eastern border of the Horqin grassland, between 120°02′–123°30′ longitude east and 44°12′–45°16′ latitude north (Figure 2). Tongyu County has a semi-arid continental monsoon climate with 2900 h of annual average sunshine, a 5.5 °C annual average temperature, 350 mm annual average precipitation, and about a 164 day frost-free period. The soil in Tongyu County, suffering from serious salinization and poor permeability, is of low quality. Tongyu County is located at the southern foot of the Greater Hinggan Mountains, one of the 14 contiguous extremely poor regions (1: the Kashgar, Hotan, and Kezilesu Kirgiz Autonomous Prefecture of Xinjiang; 2: the Lvliang Mountain area; 3: the Tibet area; 4: the Yanshan Mountain–Taihang Mountain area; 5: the Liupan Mountain area; 6: the rock desertification area in Yunnan, Guizhou, and Guangxi Provinces; 7: the Wumeng Mountain area; 8: the Tibetan ethnic areas in Sichuan, Yunnan, Gansu, and Qinghai Provinces; 9: the mountainous border in western Yunnan; 10: the Wuling Mountain area; 11: the Luoxiao Mountain area; 12: the Qinba Mountain area; 13: the south of Greater Khingan Mountains; and 14: the Dabie Mountain area) in the country, and is a state-designated poverty-stricken county. By the end of 2015, 54,598 people there were living in rural poverty (accounting for 15% of the total population of 364,000 in the county). In 2015, the county's GDP reached 11.98 billion yuan (the exchange rate of RMB¥ to US\$ was approximately 1:0.15 in 2018), with a per capita GDP of 32,912 yuan, and a ratio of output value of the agriculture, manufacturing, and service industries of 18.4:35.0:46.6. Planting (mainly corn and sorghum) and animal husbandry (mainly sheep, cattle, and chicken) constitute the main body of agriculture. The proportion of economic crops out of all crops in the country is low, and garden land only accounts for 0.32% of the total area. There are 21,000 ha of rural collective construction land, 100,000 rural households with a population of 240,000, and 3.15 mu (1 hectare = 15 mu) of residential land per rural household, with an average of 871 m<sup>2</sup> per capita in rural areas. According to the “Law on Land Management of Jilin Province”, the per capita residential land of rural areas in Jilin province is 330 m<sup>2</sup>. Therefore, the implementation of LP for the PAR project in Tongyu County has great potential.



**Figure 2.** Location of the study area.

#### 4.2. Data Sources and Research Methods

This paper adopted three methods of accumulating data: field study, key informant interviews, and face to face, questionnaire-based surveys. First, a general knowledge of the overall situation of the PAR project in Tongyu County was gained through discussions with leaders of the Tongyu County Development and Reform Bureau, who are mainly responsible for the implementation of the PAR project; several typical projects (Lujia, Linhai, and Tiexi) were selected on their recommendations. Second, details of the implementation of the project were collected through discussions with the principal leaders of the townships where the selected typical projects were implemented; the deputy township mayors responsible for the implementation of the project were consulted about their ideas and opinions on the PAR project. Finally, the village leaders of projects were interviewed for specific information on the implementation of the project in the village. Lujia Village had completed the process of relocation for poverty alleviation earlier, which facilitated the observation of the entire implementation process. We selected 30 farmers' households in Lujia Village for interviews. The choice of farmers was based on the compensation contract for farmers' demolition provided by the Development and Reform Bureau. The 260 households of Lujia were divided into three groups according to the amount of pecuniary compensation, the upper group (1–87), the middle group (88–174), and the bottom group (175–260); ten households of farmers were selected from each group.

Lujia Village ( $122^{\circ}52' E$ ;  $44^{\circ}77' N$ ), with one unincorporated village and three villagers' groups under jurisdiction, has a registered population of 391 households (917 people) and a permanent population of 246 households (657 people), including 198 registered and archived poor villagers from 92 poor households with a per capita income of 2810 yuan in 2015. There are 262 homesteads in the village, with 51% containing brick houses. Lujia village, one of the 13 key poverty alleviation villages in Jilin Province, is confronted with poor production and living conditions; outdated and deteriorating infrastructure such as roads, drainage, and housing; a lack of essential public service facilities such as education, medical treatment, and sports; poor quality of land; serious desertification; and soil erosion. Moreover, there is a high fluoride content in the surface shallow water due to special geological conditions, which has a major impact on people's lives and health. In addition, villagers have difficulty raising income because of the lack of good industrial foundation. Therefore, Lujia is a typical village with a harsh natural environment, weak economic development, outdated and deteriorating public services, and difficulties in poverty alleviation and development. In 2016, Lujia Village began to implement the pilot project of whole village relocation, which was the earliest relocation project for poverty alleviation in Tongyu County.

## 5. Policy Implementation

### 5.1. Policy Objectives

The starting point and focus of the PAR in Tongyu County is to raise the poor population out of poverty and to raise the standard of living of the remaining resettled population at the same time.

### 5.2. Policy Implementation Process

Considering the large area of Tongyu County and the scattered distribution of the villages (many of which have jurisdiction over more than 10 unincorporated villages), two or more types of infrastructure—such as roads, drinking water, and health care—will need to be constructed if the PAR project is to be implemented for the poor only, owing to the scattered population. More investment will be required from the government, which will result in a waste of resources, increased financial pressure on the government, and severing of community connections. Thus, Tongyu County selected 31 villages (25 poor villages) with weak infrastructure and strong willingness to relocate in 15 townships to carry out poverty alleviation and relocation in the whole village (Table 1). This relocation involved 11,895 households with 35,816 people, including 9559 registered and archived poor villagers in 5222 households.

**Table 1.** List of PAR projects in Tongyu County.

Town Name	Village Name
Zhanyu	Fengsheng
Bianzhao	Tiexi, Wujingzi, Yaoweizi
Xinglongshan	Jiaogemiao, Linmao
Xinhua	Dayou, Qiangsheng
Wulanhua	Lujia, Miren
Sugongtuo	Nongmu, Qiaoweizi
Bamian	Mingxing
Xinxing	Xinxing, Xinmao
Xinfa	Liuhe, Lianhe, Yongsheng
Tuanjie	Minzhu, Qianqu, Shengli
Xianghai	Xianghai, Huimin, Dafang
Baolawendu	Banlagesen, Fumin
Shuanggang	Linhai
Shihuadao	Xiangping
Hongxing	Dongfeng, Mingyue, Xingdong

#### 5.2.1. Fund Sources and Expenditure

There are two sources of funds: one is a national and provincial poverty alleviation fund, and the other is generated from LP. The total national and provincial poverty alleviation fund is 640 million yuan and has been earmarked for the 9559 rural poor residents only. The central government earmarked 7000 yuan per capita, the provincial government earmarked 10,000 yuan per capita, and the provincial financial loan provided 50,000 yuan per capita. According to the average transaction price of 150,000 yuan/hectare realized in Jilin Province, Tongyu County will realize an estimated income of 4.674 billion yuan from intra-province or inter-provincial transactions of the surplus construction land quota of 3116 ha. The total investment of the 21 PAR projects in Tongyu County is expected to be 3.268 billion yuan. If the surplus quota can be transferred completely, the financial revenue of Tongyu County will be increased by 2.046 billion yuan, which will provide plenty of funds for the county's poverty alleviation projects.

As for the use of funds, 30,000 yuan per capita is to be used as the building allowance for poor residents, while the remaining 37,000 yuan is to be used for infrastructure construction in the resettlement areas. If the poor residents are unwilling to be relocated to the resettlement areas, they will be aided with 67,000 yuan per person as a subsidy to purchase a house given their settlement

location is declared, because the average selling price of commercial houses in Tongyu County is 2800 yuan/m<sup>2</sup> and the stipulated housing area per capita is 25 m<sup>2</sup> ( $2800 \times 25 = 70,000$ ). In order to achieve a requisition–compensation balance of farmland policy, Tongyu County implemented the “Land Reclamation + High-Quality Cultivated Land Layer Establishment” project, with 30 million yuan invested by county government to improve the soil quality of the reclaimed rural construction land (Figure 3).



**Figure 3.** Land reclamation demonstration projects in Tongyu County (source: photo taken by the first author): (a) “Rural Construction Land Reclamation” project of PAR; (b) Rice planted on the reclaimed rural construction land.

### 5.2.2. Relocation Scheme

The relocation program is implemented on the principle of “government leading, the villagers willing”—in other words, the government leads the villagers to relocate, but only if the villagers are willing to do so. Proper relocation and raising income are given equal weight. PAR, construction of “The Beautiful Countryside”, urbanization, and targeted poverty alleviation are promoted synchronously. “Affordable relocation, stable development, and possibility for becoming rich” are the relocation program’s overall requirements.

The relocation program is mainly targeted at the poor villages with drinking water issues, dangerous houses in need of renovation, difficulty in accessing medical treatment and travel, and natural environment vulnerability, all of which are among the factors taken into full consideration. First, the town government conducts household surveys in each targeted village on the villagers’ opinions on the relocation program. In each village with a rate of consent at least 90%, a villagers’ congress will be held to vote on the PAR program. After the approval of the village collective and town government, the leading group for PAR set up by the county government officially issues a PAR program.

A total of 21 locations were selected for centralized resettlement on the principle of being “close to town, tourist spots, central village, main transportation road, and the original locations of the villages” [43]. Individual location-free resettlement was also available as a supplement according to the villagers’ wishes. The construction of new villages followed the guide of “a combination of ecology, economy, and landscape.” First, electric heating was adopted to achieve a green, energy-saving, and environment-protecting lifestyle. Second, natural gas was installed in all residential buildings in the resettlement areas to realize the standard of “no cooking smoke” in the newly built concentrated residential area. Third, sewage treatment facilities and standardized landfills were constructed to put an end to the phenomenon captured by a local saying “waste flying in the wind and untreated sewage evaporating.” Fourth, CCTV systems were installed in the newly built concentrated residential area, and the main entrance was linked to the command center of the county public security bureau to ensure the safety of the new settlements.

On the basis of fully respecting the wishes of villagers and not increasing the burden of the registered and archived poor villagers who were relocated, five types of housing were designed for

the relocated households to choose from according to each household's needs. The construction area and the housing area of the four apartment types mentioned above were 50 m<sup>2</sup>/40 m<sup>2</sup>, 60 m<sup>2</sup>/49 m<sup>2</sup>, 80 m<sup>2</sup>/68 m<sup>2</sup>, and 100 m<sup>2</sup>/87 m<sup>2</sup>. The construction area and housing area of the fifth apartment type was 35 m<sup>2</sup>/24.48 m<sup>2</sup>. This type was provided free of charge to households who could not afford housing, such as five-protected households (Wubaohu) (ensuring adequate food, ensuring adequate clothing, ensuring access to medical care, securing housing, and ensuring burial after death (orphans must be educated)), low-insured households without housing, and poor families with disabled members. In order to reduce the economic burden of the relocated villagers, the heating fee and the property management fee of 50 m<sup>2</sup> (about 1500 yuan per household) were waived for the relocated households. Furthermore, 50–100 m<sup>2</sup> vegetable land was opened up for each household so as to save on daily food purchase expenses.

In order to illustrate the implementation process of the PAR project in Tongyu County more clearly and specifically, this paper has taken Lujia Village (122°52' E; 44°77' N) as an example.

### Demolition Compensation Scheme in Lujia

The homestead compensation standard for residential construction of brick and tile was 1500 yuan/m<sup>2</sup>, and that of soil and grass was 1000 yuan/m<sup>2</sup>. Attached buildings such as warehouses and livestock quarters were also compensated according to certain standards (Table 2). From 30 April 2016, gardens in homesteads were not allowed to be cultivated. If cultivation continued, the incurred economic loss had to be borne by the villagers themselves. If the area of a homestead was larger than 1000 m<sup>2</sup>, the area beyond 1000 m<sup>2</sup> was compensated in a lump sum at the standard of 1 yuan per square meter.

**Table 2.** List of compensation prices for various properties in old courtyard-style housing in Lujia (source: provided by Lujia Village committee.).

The main building (built with brick and tile): 1500 yuan/m <sup>2</sup>
The main building (built with earth and timber): 1000 yuan/m <sup>2</sup>
The auxiliary building (built with brick and tile): 600 yuan/m <sup>2</sup>
The auxiliary building (built with earth and timber): 300 yuan/m <sup>2</sup>
The auxiliary building (big warehouse): 1200 yuan/m <sup>2</sup>
Brick toilet: 100 yuan/m <sup>2</sup>
Sheep house made of brick: 500 yuan/m <sup>2</sup>
Sheep house made of earth: 300 yuan/m <sup>2</sup>
Pig house made of brick: 100 yuan/m <sup>2</sup>
Hen house made of brick: 100 yuan/m <sup>2</sup>
Brick wall: 70 yuan/m
Electric well: 500 yuan each
Garden: 100 yuan/m (>1000 m <sup>2</sup> )
Cement floor: 60 yuan/m <sup>2</sup>
Silo: 600 yuan/m <sup>2</sup>
Tree: see note
Simple shed: 500 yuan/m <sup>2</sup>
Power supply: 3000 yuan per house

Note: Each grape tree at least 4 years old shall be compensated at 130 yuan, and each grape tree less than 4 years old shall be compensated at 20 yuan. Each crown fruit tree at least 8 years old shall be compensated at 80 yuan, and each crown fruit tree less than 8 years old shall be compensated at 20 yuan. Each plum tree, sand tree, and almond tree at least 8 years old shall be compensated at 80 yuan, and those less than 8 years old shall be compensated at 20 yuan. Large poplar and willow trees shall be compensated at 400 yuan per cubic meter. Other trees at least 4 years old shall be compensated at 20 yuan per cubic meter. No compensation shall be given for trees less than 4 years old. The main building of a courtyard is the residential housing.

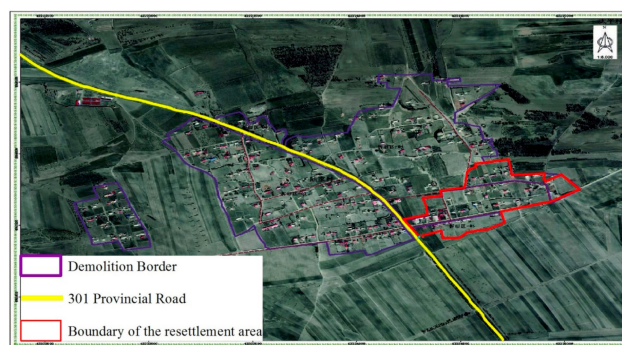
For villagers whose homesteads were scheduled for demolition ahead of the construction of the new district, housing rent compensation was given if they lived in the village year-round rather than leaving to work in the cities. Local elementary and secondary school students who lived in the county

and often returned home also received compensation. The standard of housing rent compensation was 300 yuan per person per month until the day when the village released the notice of resettlement.

One-time compensation for livestock resettlement was offered, with the compensation standard of 100 yuan per head of sheep and 200 yuan per head of cattle, horses, or donkeys; none was offered for birds and other animals. Thereafter, any loss incurred in the process of resettlement had to be borne by the villagers themselves. The number of sheep, cattle, horses, and donkeys for compensation had to be verified by the leading group in charge of the specific PAR project, and subsequent increases of livestock would not be compensated.

#### Planning Scheme of the Newly Built Concentrated Residential Area in Lujia

In the former site of Lujia Village, houses were scattered on both sides of Provincial Highway 301. As a result, villagers had to cross the highway for farming and grazing, which caused great inconvenience and danger in their daily lives because of heavy traffic flow. Therefore, the newly built concentrated residential area of Lujia was constructed on the southeast corner of the original village, which lay 300 m northeast on Provincial Highway 301 (Figure 4).



**Figure 4.** Remote sensing image of Lujia (source: Provided by Lujia Village committee.).

#### New House Purchase and Distribution Scheme in Lujia

Before the new resettlement housing was built, a general knowledge of the housing types (35 m<sup>2</sup>, 50 m<sup>2</sup>, 60 m<sup>2</sup>, 80 m<sup>2</sup>, 100 m<sup>2</sup>) and the number of garages the villagers would purchase had been ascertained through communication with the soon-to-be-new residents. Villagers purchasing the same type of housing drew lots to determine the specific housing for them.

##### 5.2.3. Industrial Development Planning after Relocation

- (1) The land of the demolished old areas was reclaimed and turned into high-quality farmland. All 31 demolished old areas in Tongyu County have since been reclaimed to high standard paddy fields or irrigated land. The village collectives are responsible for the transfer of reclaimed farmland. Transfer income is mainly used for reduction of villagers' heating fees and property management fees.
- (2) In order to solve the problem of inconvenient farming after relocation, a land stock cooperative was set up to encourage large-scale and intensive agriculture. Private agricultural companies were also fostered or introduced to participate in the transfer of farmland.
- (3) Tongyu County issued the "Implementation Plan for the Construction of the Livestock Breeding Park (Muye Xiaoqu)" specifically to guide the development of livestock breeding. For example, Lujia Village has spent 6 million yuan on building a 243 acre scale standardized livestock breeding park, and has adopted cooperative operation and benefit-sharing to promote the livestock breeding industry.
- (4) The county government has implemented a rooftop distributed photovoltaic poverty alleviation project. A 40 MW distributed photovoltaic poverty alleviation project is planned to be built on the

roofs of residential buildings and warehouses in 20 resettlement areas (excluding the resettlement area of Xianghai Village for nature reservation cause). The new district lighting project will be completed by photovoltaic power generation lighting, and the surplus electricity revenue will be owned by the village collectives.

- (5) The relocated villages rely on the business projects introduced in recent years in Tongyu County to help alleviate the economic burden of the poverty-stricken population, including the Jiyun cattle project, the Muyuan pig project, the Zanjia chicken project, the Geshan donkey project, and the Yangchun goat milk project. For example, the Jiyun Group Company has paid a total of 86.532 million yuan to contract all farmland and grassland in Xiangping Village to 2026. Xiangping Village earned an average of more than 200,000 yuan for this item per household. At the same time, 120 villagers have been working in the Jiyun Group Company with a monthly stable income of 3000 yuan. The Muyuan Group Company has established 12 live pig breeding projects in Qianqu Village and Shengli Village of Tuanjie Township. A photovoltaic ecological chicken breeding base was established by the Yanjia Group Company, and a meat clam (a donkey bred for its meat) farm and slaughterhouse established by the Geshan Group Company has been fully extended to relocated Tiexi Village, Wujingzi Village, and Yaoweizi Village. Yangchun Goat Milk Group Company has built a dairy goat breeding base in Lianhe Village and Yongsheng Village of the Xinfa Township.
- (6) The county and township labor export platform is used to help rural villagers able to work to go out to work. The establishment of local agricultural and livestock companies, tourism companies, e-commerce, catering and hospitality service enterprises, and so on is encouraged. The villagers have enjoyed increased job opportunities as security personnel, cleaning personnel, mechanics, etc. in resettlement areas.
- (7) The county government plans to develop rural tourism around their abundant resources, such as the Xianghai Wetland, the Xinglongshan Mongolian Ulmus Macrocarpa forest, and the Baolawendu Apricot Forest. The relocated villages around the scenic spots will build farmhouses, picking gardens, and fishing gardens to increase tourism income.
- (8) Relying on the village comprehensive service center, the county government will build an e-commerce integrated service station, an express logistics distribution station, a network business entrepreneurship training station, and a net cargo supply station, among others, to actively promote the development of the rural e-commerce industry.

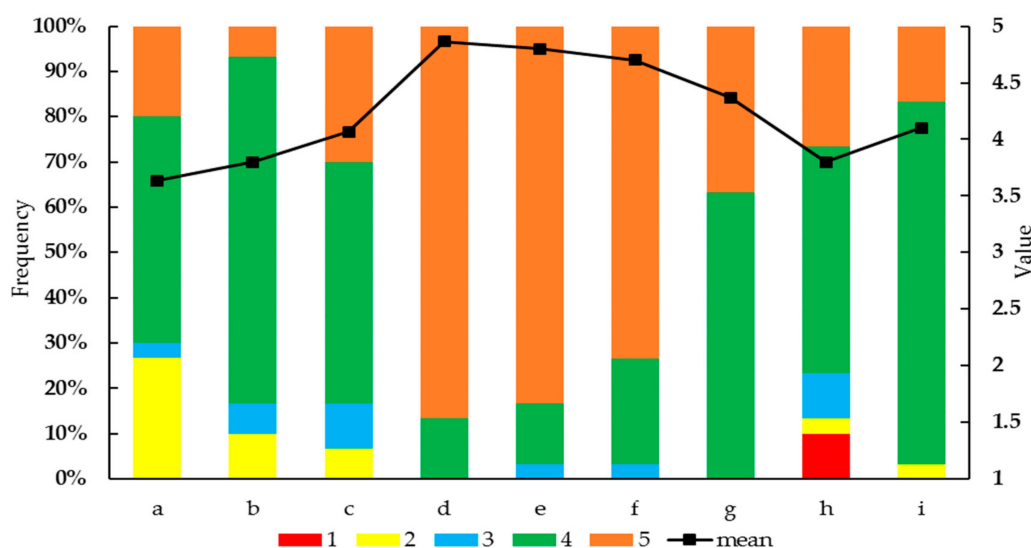
#### 5.2.4. Community Management Measures

The resettlement community is equipped with local clinics and a kindergarten, in order to solve prior problems of difficulty accessing medical treatment and schools. To help relocated villagers adapt to urban-style living in the short term, lectures on spiritual discourses and activities to improve the quality of life are held regularly. To strengthen the management of the community, the residential community is divided into sub-grids, and qualified villagers are selected as the leaders of the sub-grids. To realize self-management, self-service, self-education, self-enhancement, and self-supervision, rules and regulations are formulated, and common organizations such as the civil mediation committee, public sentiment council, stylistic group, volunteer teams, and so on are founded.

## 6. Policy Implementation Effect

The results of our investigation (Figure 5) on the proportion of the degree of democracy (Figure 5a) and the reasonable degree of compensation (Figure 5b) allowed by the relocation process showed that the majority of cases in the relocation process scored 4 (relatively high), whereas the proportion of those that scored 1 (very low) was zero. These results indicate that the relocation scheme was relatively successful. The satisfaction of villagers in terms of living environment and public services (Figure 5d–g) was high, and the proportions of negative statements were zero; however, the satisfaction

of villagers regarding production and social intercourse was not perfect (Figure 5c,h,i), and some negative statements existed, especially regarding the frequency of neighborhood communication.



**Figure 5.** Frequency and mean value of residents' satisfaction. (a) Degree of democracy; (b) Reasonable degree of compensation; (c) Adaptability to production and life; (d) Water use, heating, and indoor toilet availability; (e) Traffic, housing, and public security; (f) Education, medical treatment, and entertainment public service facilities; (g) Shopping places; (h) Frequency of neighborhood communication; (i) Neighborhood relationships.

### 6.1. Positive Effect

In 2017, among the 24 villages that were extracted out of poverty, 20 (83.34%) implemented PAR projects. After the implementation of the PAR projects, local fiscal revenue improved, allowing the county government to inject more funds into other villages and towns. Both the new infrastructure construction and the supporting facilities for other poverty alleviation projects have enabled the effective implementation of further projects.

The quality of life in general has improved. First, the living environments have undergone tremendous changes (Figure 6). For example, dilapidated houses have been converted into spacious and bright buildings, and shallow pressurized wells have been supplanted with deep wells that provide safe drinking water. The original muddy courtyard has become a clean, tidy community with cultural and entertainment plazas, street lamps, and vegetable gardens. Moreover, the use of natural gas has allowed the replacement of the original straw-burning heating source into green electric heating. Further, people live in buildings with a constant temperature, effectively preventing both fires and illnesses caused by frequent fluctuations between heat and cold. Second, public services have been improved in all aspects. Public culture squares, kindergartens, nursing homes, village clinics, library rooms, cultural and sports rooms, and other public services are available so that the daily needs of the villagers for leisure (Figure 7), entertainment, schooling, old-age care, medical treatment, reading, and fitness are fully satisfied.



**Figure 6.** Comparison of living conditions of a poor household before relocation and after relocation (source: provided by Lujia Village committee).



**Figure 7.** Comparison between new and old village committees of Lujia: (a) New village committee building of Lujia; (b) Old village committee building of Lujia. (source: photo taken and collected by the first author.).

The collective economic strength and income of the village have been significantly increased. Taking Lujia Village as an example, the net value of fixed assets such as residential buildings, warehouses, comprehensive service centers, kindergartens, nursing homes, health centers, and cultural squares in newly built concentrated residential areas has increased by 9.3 million yuan. The leased collective land received an annual rent of 968,100 yuan and an irrigation use fee of 110,000 yuan. The farmland reclaimed from original settlement generates a rent of 500,000 yuan per year; the rental income from leasing to the kindergarten is 30,000 yuan each year. In total, the overall income of the collective economy reached 1.708 million yuan in 2017.

The income of farmers increased significantly. Take Lujia Village as an example: In 2015, the per capita income of villagers in the Lujia was only 5500 yuan, but after the implementation of the project in 2017, the per capita income increased to 17,174 yuan. This included a land transfer income per capita of 4212 yuan; the wage income, which was improved by the liberation of the agricultural labor force, of 11,938 yuan; and the agriculture subsidy per capita of 1024 yuan. Moreover, the average compensation generated from the PAR project per household was 107,000 yuan.

## 6.2. Reported Concerns

The interview results from villagers and village leaders showed that some villagers were not satisfied with the following aspects. First, in order to make compensation for old housing fairer, the compensation for damaged houses was reduced, owing to an estimation of the degree of damage to the house that was subjectively determined by only the staff of the PAR project. Second, the farmland of some villages still has not been transferred and some new resettlement areas are far away from the cultivated land, which increases the time and transportation costs of farmers. In addition, the

noise from agricultural machinery annoys some villagers, especially in the early mornings of summer. Third, all livestock breeding has been temporarily suspended. In 2020, this may recover in the animal husbandry park where rent has to be paid. In so doing, the cost of livestock breeding will increase. Fourth, some elderly people are not used to living in an apartment. Although the elderly also said that their overall living standards had improved after moving into the apartment, they were used to and fondly remembered aspects of their pastoral lifestyle, such as chatting under the shade of trees and going to the fields together. Finally, their hygienic habits are not good. Behaviors such as spitting and throwing garbage anywhere are still quite common.

### 6.3. Hidden Issues

#### 6.3.1. Uncertain Future of Industry Development

The follow-up industries (that is, industries introduced after relocation to develop the local economy) of the PAR Projects in Tongyu County are basically land transfer and the establishment of land share cooperatives, photovoltaic power generation, tourism, and e-commerce. At present, these industries are still in their infancy or their experimental stages. As the common villagers in poor villages lack financial and human capital, many follow-up industries are dominated by the village collectives and are heavily dependent on government support or subsidies, such as for photovoltaic power generation and land transfer. Once there is a change or drop out of poverty alleviation policies, their future fate become highly uncertain.

#### 6.3.2. The Possibility of Further Hollowing

Hukou reform effectively offers institutional support for encouraging surplus rural labor to migrate to urban areas and engage in nonagricultural work, which has resulted in the de-agriculturalization of the rural employment sector as well as a serious depletion of rural residential populations. In Lujia Village, the percentage of the registered population over 60 years old reached 19.6 percent (Figure 8), far higher than the international standard for a municipality in a country that is becoming an aging society. Almost all young people go to work in other places, and school-aged children are inclined to go to schools in townships and counties. The residents who usually live in the village are typically over 50 years old. Thus, the village faces the dilemma of population aging and re-hollowing, or of villagers leaving for other work locations owing to a lack of an industrial base.

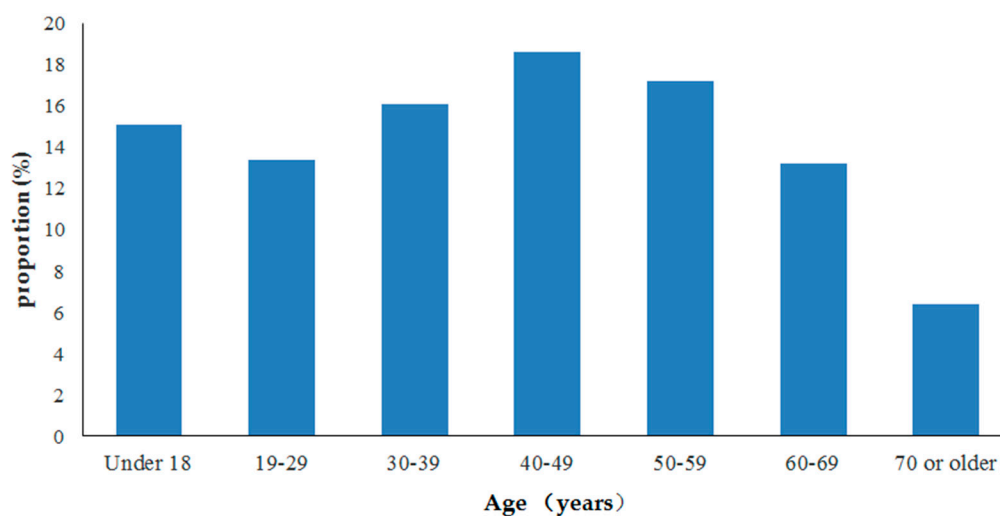


Figure 8. Distribution of age structure of household residents in Lujia.

## 7. Conclusions

First, the study found that the “whole village relocation” model employed in Tongyu County was relatively successful. This model saved resources, reduced financial pressure on the government, and improved the living environment, income, and public services of local villagers. The integrated implementation of the PAR and the LP was an effective method of poverty alleviation. The local government was able to obtain more funds and resolve multi-dimensional poverty problems such as production, survival, and ecological balance once and for all. However, the poor villages located in mountainous areas may not have this opportunity because their reclamation potential is low and the reclamation cost is high. Therefore, the integrated implementation of the PAR and the LP is restricted by physical conditions.

Second, there are two key elements in the implementation process for PAR. The first involves polling and voting before the start of the project. The consent of the vast majority of farmers is required to prevent coercion to relocate. Only in this way can willing buyers be easily found for all the newly built apartments and garages. The second key element involves the necessity of collective land transfer and moderate-scale operation of agriculture, because the production conditions of small farmers were disrupted or worsened after the relocation.

Third, even as the integrated implementation of the PAR and the LP achieved many successes, it raised some issues worthy of attention. In the short term, the main challenge was how to encourage villagers adapt to an urbanized lifestyle and find non-agricultural jobs. In the long term, the future of follow-up industries is highly uncertain, as many of them are dominated by the village collectives and heavily dependent on government support or subsidies; moreover, the new resettlement community faces the dilemma of re-hollowing, as the aging of the population is serious.

Finally, in the process of land quota transfer, pursuing a requisition–compensation balance of farmland is worthy of attention. Economically developed areas often purchase construction land quotas located in rural areas with excellent natural conditions and high-quality farmland, while rural areas that implement PAR are generally located in areas with poor natural conditions and a low quality of reclaimed farmland. Although the projects of “Land Reclamation + High-Quality Cultivated Land Layer Establishment” have been carried out during the implementation of PAR, it is difficult to achieve the true requisition–compensation balance of farmland since the quality of the farmland is affected by many long-term physical factors such as climate, vegetation, topography, and hydrology.

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