

Article

# Mechanism and Effect of Shantytown Reconstruction under Balanced and Full Development: A Case Study of Nanjing, China

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**Abstract:** Shantytown is a type of urban residential space with a long history in populated areas; it is a negative and stark space with a gradual decline in function and poverty. It is also a concentrated reflection of an unbalanced and inadequate development of the urban social space, which restricts the development of a high-quality and sustainable social economy. Taking shantytown reconstruction in Nanjing as an example, based on the information of 434 shantytown plots dating from 2008 to 2020, it combines the two typical cases of state-owned land: Xijie and collective land—Nanhe, and the questionnaire data regarding the removal and resettlement of residents, the driving mechanism and the effect of social space reconstruction of shantytown. Reconstruction is mainly discussed based on the overall understanding of the space–time characteristics of shantytown reconstruction in Nanjing. It is found that the top-down policy which transfer from the central government to the local government, the value orientation of urban growth alliance in pursuit of asset appreciation, and the interest demands and game attitude of shantytown residents from the bottom up are all important forces to promote shantytown reconstruction. Shantytown reconstruction plays a key role in improving the housing conditions of residents; it fully taps on the potential land value, thus enhancing the urban function and quality. However, the gentrification reconstruction of the original shantytown space, and the centralized resettlement of the poor groups in the urban fringes, have led to an unbalanced development of the new urban social space, with an insufficient guarantee for the removal and resettlement groups. In view of the social space problems caused by the poor people living in the outer suburbs, this paper puts forward some recommendations on policy optimization and plan adjustment of shantytown reconstruction.

**Keywords:** Shantytown; shantytown reconstruction; removal and resettlement; state-owned land; collective land; gentrification; Nanjing; China

## 1. Introduction

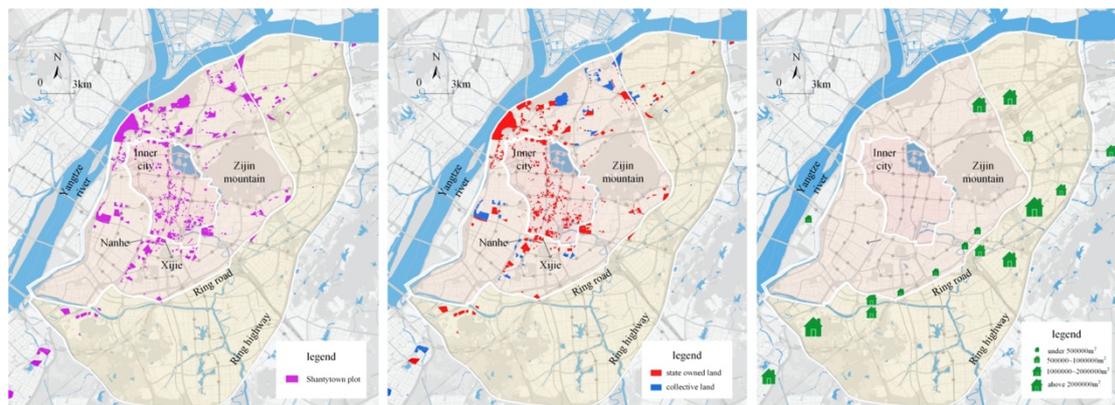
“Shantytown” is a special and age-old urban residential space type and a global phenomenon, which is generally described as uninhabitable informal housing and areas inhabited by high-density, low-income groups. China’s urban shantytowns refer to areas within the scope of urban planning. Where there are many simply structured houses, a density of large buildings, long service life, poor quality of houses, many hidden dangers of building safety, imperfect function and unsound supporting facilities. According to the nature of the land, shantytowns can be divided into two categories: first, shantytowns on state-owned land, which mainly include simple houses built before liberation, and houses built by state-owned enterprises to accommodate a large number of workers after liberation, which became

“dilapidated houses” due to disrepair and filthy environment; the second is the collective land, shantytown. Due to the rapid expansion of urban space, the rural settlements and agricultural production space that were originally located on the outskirts of the city are now surrounded and part of the urban built-up area, and has evolve into the “village in the city”. Shantytowns are usually accompanied by a filthy environment, crowded spaces, a weak functionality, poverty agglomeration and other negative situations, which are referred to as the “depression” of urban development. Without external forces to reconstruct, shantytowns are well on their way to becoming urban “slums” and may cause serious social space problems. Therefore, focusing on improving the housing conditions of the poor, the central government began to implement the shantytown reconstruction plan nationwide in 2008.

Shantytown reconstruction is an important livelihood project for difficult to house urban groups, which is also conducive to stimulating investment and consumption demand. Driving the development of related industries, and promoting the people-centered new urbanization construction. The shantytowns reconstruction should not only enable shantytown residents to live in better houses, have a better life, and meet their needs for a better life, but also emphasize the win–win scenario of various stakeholders. This jointly solves the problems created by old shantytowns inherited with the liberation, and also promotes the urban social balance and full development of space. For the last 100 years, other countries have studied the phenomenon of shantytowns. Urban geographers mainly discuss the social space characteristics, formation and evolution mechanism of shantytowns as well as the social isolation effect and reconstruction measures of shantytowns [1–5]. Compared with the international research results with its rich contents and diversified perspectives, Chinese geographers still pay insufficient attention to urban shantytowns [6,7]. In view of this, it is necessary to carry out systematic research and objective evaluation of the reconstruction of typical urban shantytowns, from the perspective of urban geography. Taking Nanjing as a case city, this paper makes a comprehensive analysis of the reconstruction process, spatial characteristics, demolition compensation, resettlement plan and satisfaction degree of shantytowns in Nanjing, as well as the differences between state-owned and collective land, in the reconstruction of shantytowns. It has a deep understanding of the space-time pattern, driving force and the effect of urban social space reconstruction of the urban shantytown reconstruction in Nanjing and puts forward corresponding policy optimization suggestions in view of the possible integrity problems in shantytown reconstruction.

## 2. Research Area and Date Resource

As the center of the Yangtze River Delta city cluster, Nanjing is a modern and economically developed international metropolis. Its urban development is not driven by substantial foreign investment, nor does it enjoy policy dividends such as special zones. According to the spatial distribution characteristics of urban shantytowns as well as the undertaking of removal and resettlement housing, Nanjing city, in the south of the Yangtze River which is surrounded by a highway around the city, was selected as the research scope, involving Gulou, Xuanwu, Qinhuai, Jianye, Qixia and Jiangning districts. As shown in Figure 1, it can be divided into three spatial layers: first, the inner city enclosed by the city wall of the Ming dynasty, which is the traditional old urban area of Nanjing, and the area with the most dense distribution of state-owned land shantytowns. The second area that was chosen is between the city wall of the Ming dynasty and the beltway, which belongs to the peripheral area and the near suburban area, and is the main distribution area of collective land shantytowns. Thirdly, the area between the beltway and the surrounding expressway, which belongs to the new urban area and the outer suburb area and is the main distribution area for removal and resettlement housing (mainly basic-needs housing that is based on affordable housing).



**Figure 1.** Study area and research subjects.

Xijie and Nanhe were chosen as case studies for this paper primarily for the following reasons: (1) Xijie (state-owned land) and Nanhe (collective land), which are adjacent in spatial location, with similar land occupation scale and similar in reconstruction time, as typical cases to analyze the social spatial attributes of shantytowns and the driving mechanism and comprehensive effects of shantytown reconstruction, and compare the differences between state-owned and collective land shantytowns. (2) The transformation of these two areas accompanies the wave of urban renewal in Nanjing, which can be studied in China's general rules of urban renewal. (3) The experience of demolishing and renewing these two shantytowns has been widely applied to other shantytowns in Nanjing. As a result, 300 resettlement families were randomly selected from two plots of Xijie and Nanhe for telephone interviews, focusing on the age, educational level, occupation, income, housing changes before and after demolition, the impact of demolition on life, satisfaction with demolition compensation and resettlement, interest in active demolition and the willingness of a future relocation, etc., and 193 valid questionnaires were obtained, 102 from Xijie and 91 from Nanhe.

### 3. Imbalance and Inadequacy of Shantytowns

China's shantytowns often share some similar characteristics with a slum in the West. In terms of social structure, both areas are concentrated in the lower strata of urban society [8,9]. They generally have low incomes, low levels of education, and low job stability. Besides, both areas are characterized by poor housing quality, long-term use, high building density, impaired functions in terms of spatial patterns [10,11]. China's shantytowns then also have some features that distinguish them from Western slums. First of all, most of China's shantytowns result from the natural decay of urban communities, and behind this decay is the disintegration of the unitary system. In the planned economy era, urban housing in China was mainly provided by state-owned enterprises (SOE), government, etc. [12]. However, with the reform of the market economy, some enterprises could not make corresponding changes, resulting in bankruptcy or relocation. In the process, many original enterprises' employees also lost their stable jobs and the neighborhoods in which they lived declined due to the units' inability to renew [13–15]. Secondly, the Chinese government has been able to control shantytowns in China even though they have some security problems compared to Western slums. On the one hand, because land ownership rights in China's shantytowns belong to the state [16]. Additionally, and most importantly, there are still government grassroots management organizations in the shantytowns, which means that China's shantytowns do not become "out of law" areas most of the time [17]. The former implies that China's shantytowns are, for the most part, historical legacies of SOE reform, while the latter determines the social welfare nature of China's shantytown renewal. Either way, it embodies the imbalance and insufficient development of the urban social space.

The "imbalance" of shantytowns is mainly reflected in the "landscape imbalance" and "group imbalance." The environment is "dirty and disorderly", the housing is "old and shabby" and the

residents are “poor and miscellaneous”, which are typical characteristics of the living space and social structure of shantytowns. For example, before the renovation of Xijie and Nanhe areas, the living environment of shantytowns were poor, the housing structure was simple, the building quality was low, the infrastructure was also weak, the internal passages were narrow, the space between houses could not meet the lighting and ventilation requirements of modern urban life, temporary buildings and private buildings were common, and there were potential safety hazards (Figure 2). Families living in shantytowns usually have a large, aging population, poor family integrity, high unemployment rate among heads of households, and more “low-income families with housing difficulties.” Due to the particularity of landscape environment and residents’ attributes, shantytowns are separated from other urban spaces and are incompatible with the overall urban style, resulting in the “dual structure” of urban internal space development, which seriously hinders the overall improvement of urban living environment and quality.



**Figure 2.** Building environmental landscape of Xijie (a–c) and Nanhe (d) shantytown.

The “inadequacy” of shantytowns is mainly reflected in the “inadequate function” and “inadequate market.” For the inadequate function, with the transformation and upgrading of urban functions from production to consumption and from single to compound, low-end residential and industrial functions in shantytowns can no longer meet the needs of modern urban function, upgrading, transformation and development. They are an inefficient utilization of urban spatial resources. The inadequacy market, on the other hand, is manifested in two main ways: (1) for collective land, the “village in the city” housing on collective land cannot be freely bought and sold because of the property of “small property house right,” resulting in a massive gap in the price of the real estate between shantytowns and the surrounding areas, which in turn hinders the maximization of the benefits of the land management of the city government and the appreciation and realization of the housing assets of shantytowns; (2) for state-owned land, as mentioned earlier, shantytowns are a historical legacy of the reform of

SOE. The state undoubtedly owns the shantytowns, but the property rights of the housing itself are not very clear; some residents only have the right to use the housing without ownership. Additionally, the property rights of some residents who have built their own houses are even more ambiguous [18].

The “insufficiency” of shantytowns own development is the reason for the “unbalanced” development of urban space, and the uneven development of differentiated urban infrastructure and capital investment will further aggravate the spatial decline and social segregation of shantytowns. If it is allowed to develop, it may cause shantytowns to become “slum-like,” and affect the overall economic prospects of cities, threaten the sustainable development of cities, and reduce the competitiveness of cities on a global scale [18]. Therefore, the government’s core intention is to fundamentally solve the problem of uneven and insufficient development of shantytowns through removal and resettlement. Firstly, to promote the development of urban space to a higher quality of balanced direction; secondly, to fully tap the potential use, and exchange value of shantytowns space; thirdly, to give the shantytowns difficult to house groups adequate housing improvement and life security.

#### 4. Temporal and Spatial Characteristics of Shantytown Reconstruction in Nanjing

Since the implementation of the shantytown reconstruction policy, Nanjing has continuously launched multiple rounds of shantytown reconstruction plans centering on its urban image as an “innovative city and a beautiful ancient capital”, focusing on the clean-up and rectification of shantytowns. By the end of 2020, 434 shantytowns in the research area will have been renovated, and the construction area of demolition will reach to 11.1588 million m<sup>2</sup>, involving 92,700 households. In terms of spatial distribution characteristics, the shantytowns in Nanjing are characterized by “inner points and outer areas” and “thick at the river and along the road”: The large-scale urban renewal and old city reconstruction movement started at the end of the 20th century, which basically made the large-scale shantytowns in the inner city disappear. The remaining shantytowns are mainly distributed in the middle of the city and the south of the city, due to their high density and great difficulty in renovation. Outside the inner city, there are still a certain number of dilapidated houses, villages in the city, industrial enterprises and family districts and other concentrated shantytowns, which are mostly scattered along the river and on both sides of the urban main roads.

From the perspective of the shantytown reconstruction process, Nanjing shantytown reconstruction shows the characteristics of “inner city first and periphery later”, “state-owned first and collective later”, “localized first and scattered later”, and “simple first and difficult later”. Based on the release date of key policy documents of Nanjing, the shantytown reconstruction from 2008 to 2020 can be divided into four stages (Table 1): (1) From 2008 to 2011, the removal and resettlement was mainly carried out in the shantytowns of state-owned land concentrated in the main city. After this stage, the basic reconstruction of key dilapidated houses in the inner city was completed; (2) from 2012 to 2015, urban villages on collective land were integrated into the scope of shantytown reconstruction, and urban villages became the focus of reconstruction with the simultaneous reconstruction of built-up and non-built-up shantytowns in the main urban areas; (3) from 2016 to 2018, to promote the “destocking” of urban commercial housing, the state required an expansion of the scope of shantytown reconstruction and “an increase in the proportion of monetized resettlement for shantytown reconstruction”. The shantytown reconstruction in Nanjing entered the second half and began to centrally clean up and rectify the scattered shantytowns; (4) from 2019 to 2020, the State Council demanded that “cities and counties with insufficient inventory of commercial housing, and high pressure of rising housing prices, should cancel the monetized resettlement preferential policies as soon as possible”, and “it is strictly forbidden to borrow money blindly in the name of reforming the shantytown.” The gradual tightening of monetary and financing policies of Nanjing’s shantytown reconstruction marks the current round of shantytown reconstruction has entered the final stage, focusing on the reconstruction of scattered plots with great difficulty in the inner city as well as shantytowns in the remote peripheral locations.

**Table 1.** Scale of phased shantytown reconstruction in Nanjing from 2008–2020.

| Stage Division | Number of Plots (Piece) | Number of Demolition (Household) | Floor Area (Ten Thousand m <sup>2</sup> ) | Building Area (10,000 m <sup>2</sup> ) |               |
|----------------|-------------------------|----------------------------------|---|--|---------------|
|                |                         |                                  |   | Residence                              | Non-Residence |
| 2008–2011      | 47                      | 17,600                           | 475.72                                    | 374.98                                 | 1.14          |
| 2012–2015      | 111                     | 31,052                           | 678.19                                    | 368.80                                 | 288.12        |
| 2016–2018      | 130                     | 20,390                           | 358.37                                    | 177.33                                 | 61.04         |
| 2019–2020      | 146                     | 23,640                           | 366.87                                    | 194.67                                 | 26.74         |
| Total          | 434                     | 92,682                           | 1879.15                                   | 1115.78                                | 377.04        |

Data source: According to the data provided by Nanjing Housing Security and Real Estate Bureau.

## 5. The Driving Force of Shantytown Reconstruction Based on a Balanced and Full Development

### 5.1. People's Livelihood Task and Policy Drive: The Policy Transfer from Central to Local

Chinese center government stressed that the shantytown reconstruction is a major livelihood project, it is also a development project, and is an important subject matter and starting point to promote a new type of urbanization with people at its core. In order to solve the unbalanced urban development problem of “high-rise buildings on one side and shantytowns on the other side”. Together with the realization of the task of urban shantytown reconstruction with a population of 100 million by 2020, the central government has issued a series of policy documents on promoting shantytown reconstruction, requiring local governments such as provinces, cities, districts (counties) and other local governments to earnestly strengthen, speed up and do a good job in shantytown reconstruction, with the central goal of improving the living conditions of low-income families with housing difficulties. Under the political driving force from top to bottom, the policy of shantytown reconstruction has been lowered and shifted step by step, and the task of shantytown reconstruction has been itemized and implemented step by step. From the perspective of the “intergovernmental relations” between the central and local governments, the shantytown reconstruction is “central government treat, local government pays”. The central and provincial governments have supported the shantytown reconstruction by means of financial subsidies, tax reductions and exemptions, and awards instead of subsidies. However, relative to the huge capital demand for the reconstruction, the municipal and district (county) governments, being fully responsible for promoting the reconstruction, still bear a considerable degree of financial pressure.

Taking Nanjing municipal and district government as examples, it is necessary to strive to maintain the local financial balance based on completing the difficult target tasks set by the higher authorities. The measures taken are mainly as follows: (1) Each district reports 2–3 key and difficult shantytown reconstruction projects with a large fund gap and large budget deficit to the city for examination and approval, and applies for central and provincial financial subsidies; (2) the municipal government assigns the exact tasks of shantytown reconstruction to each district every year, and all the municipal unyielding provision of the land transfer proceeds shall be returned to the district for the balance of the reconstruction funds; (3) in order to complete the quota of shantytown reconstruction allocated by the municipal government every year, each district prefers to submit projects with less difficulty and cost to the city for approval. For public welfare projects whose funds are difficult to balance, they will be reported together with other plots. Although the shantytown reconstruction requires a large scale of financial investment from the government, the land transfer after demolition often brings considerable fiscal revenue to the government. Therefore, driven by the dual performance of politics and economy, the districts of Nanjing often take the initiative to report the “self-increasing pressure” project on the basis of the “designated project” of the municipal government, making the whole city's shantytown reconstruction plan exceed the quota and completion in advance for many years in succession.

### 5.2. Urban Management and Economic Drive: Space Asset Appreciation and Rent Gap Release

In the context of globalization, marketization and decentralization, China is regarded as a “federalist” in the economic level [19]. If the local government makes the transition to be a business-like government [6,20], it needs to be proficient in balancing budget and fiscal revenue. In this context, the large-scale shantytown reconstruction campaign, on the one hand, brings financial pressure to bear on the local government, but also creates opportunities for the city government to tap the potential of high-quality urban “space assets” [21] and improve the city’s brand image. However, it is difficult to meet the funds demand of shantytown reconstruction by relying solely on the financial expenditure of government departments. The government usually allows the construction of a certain proportion of commercial service facilities and commercial housing in the reconstruction projects, supports the transfer of part of the government revenue, and attracts market entities including government platform companies and diversified social capital to participate in the reconstruction of shantytowns. As a result, through the interaction of market and administrative mechanism, local governments and departments form a growth alliance with enterprises [22], which makes the behavior mode of entrepreneurs, and the action logical capital profit which can be seen in the main body of shantytown reconstruction, and makes the shantytown reconstruction evolve into an important mean of capital circulation, accumulation and space asset appreciation of urban growth alliance beyond the mission of people’s livelihood.

Based on the perspective of capital circulation and asset appreciation, the concept of “rent gap” proposed by Neil Smith, a neo-Marxist scholar, has good explanatory power for shantytown reconstruction. In the context of China’s special political and economic transition, urban land “rent gap” consists of the “actual rent gap” caused by the public ownership of land and the depreciation of housing and the “expected rent gap” caused by the continuous and rapid appreciation of real estate [23]. From the perspective of “rent gap”, shantytown reconstruction is an urban growth alliance composed of the city government, investors and the development and management subjects. With the purpose of revitalizing the low-efficiency space assets of shantytown, by modifying urban planning, increasing plot ratio and changing land use nature, the “potential land rent” can be expanded and the “rent gap” activation and release process of excess profit are pursued. The activation and release of “rent gap” in shantytowns is an important way for urban governments to balance their financial and administrative rights [24,25]. Local governments can obtain considerable land financial benefits through the process of land expropriation, demolition and transfer in shantytowns.

Under the logic of urban management and capital appreciation, the local government tends to select the shantytowns with the largest profit space, between land redevelopment cost and future income for reconstruction, that is to say the region where the largest “rent gap” income can be obtained by directing capital inflows [26]. It can be seen from the space–time characteristics of Nanjing shantytown reconstruction that most of the shantytowns that took the lead in the reconstruction are located in the inner city with high land redevelopment value, along the urban “cross” axis and subway line, in the north and south of the city where traditional houses and poor people are concentrated, along the Yangtze River, on both sides of the Qinhuai River, by the Xuanwu Lake and at the foot of Zijin Mountain and other areas with beautiful environmental landscape. However, most of the shantytowns left for final reconstruction are in poor location, high demolition cost and great difficulty in reconstruction, or after the reconstruction, the planning nature is the “hard bones” of the public land such as greenbelts, roads, service facilities, etc.

### 5.3. Group Demands and Social Drive: The Need for a Better Life and Interest Game

Under the demand of balanced and full development, in addition to the gradual subsidence of national shantytown reconstruction policy and the implementation of tasks, as well as the supply side driving forces of local governments improving the urban environment and exploiting the potential land value of enterprise management, the game behavior of shantytown residents from the demand end who are eager to improve the quality of life and economic benefits through reconstruction is also an important force to promote shantytown reconstruction. As the direct stakeholders of shantytown

reconstruction, out of the need for a better life, shantytown residents generally have a positive attitude towards shantytown reconstruction. Most families look forward to the demolition as soon as possible, and they can promote shantytown reconstruction from the bottom up by expressing their appeals to the government. For example, through all levels of petition channels, Nanjing citizens can dial the “12345” service hotline, reflect to mayor and district chief mailbox, express demolition intention to the street, and so on, to ask the municipal and district governments to include dilapidated houses and urban villages in or speed up the shantytown reconstruction plan.

Shantytown houses are usually the most important assets of shantytown families. In shantytown reconstruction, shantytown residents, through negotiation with the government or developers, strive for more demolition compensation for families, which is often the best opportunity for them to change their living conditions. In particular, the group with a large area or even multiple houses in suburban villages in cities has realized full monetization of those houses on their collective land that cannot be freely traded, or replaced with monetizable houses, are becoming the largest beneficiary of the removal and resettlement families in shantytowns [27]. For example, 240 removal and resettlement families in Nanhe have an average cash compensation amount of nearly CNY 800,000, and the housing conditions have also been significantly improved (Table 2). In addition, the low-income, difficult-to-house group in the old and dangerous houses of the inner city also has a strong desire for shantytown reconstruction. Due to the small housing area, it is difficult for low-income families to buy or move back to replace commercial housing. This group cannot obtain a huge amount of cash compensation but can greatly improve the living conditions through relocation to affordable housing. For example, 268 households in Xijie and 240 households in Nanhe have been relocated, and the average compensation amount is only CNY 200,000. After moving into affordable housing, the housing ownership rate increases from 61.4% to 100%, and the per capita residential area increases from 7.6 to 26.9 m<sup>2</sup> (Table 2).

**Table 2.** Residential area before and after shantytown reconstruction of Xijie and Nanhe districts.

| Case Area |                       | Proportion of Self-Owned Housing (%) | Average Dwelling Size (m <sup>2</sup> ) | Per Capita Housing Area (m <sup>2</sup> ) | The Proportion of All Types of Residential Apartments (%) |                      |                      |                    |
|-----------|-----------------------|--------------------------------------|---|---|---|----------------------|----------------------|--------------------|
|           |                       |                                      |   |   | <50 m <sup>2</sup>  | 50~65 m <sup>2</sup> | 65~75 m <sup>2</sup> | >75 m <sup>2</sup> |
| Xijie     | Before Reconstruction | 31.2                                 | 14.5                                    | 7.6                                       | 61.6%   | 32.8%                | 5.2%                 | 0.4%               |
|           | After Reconstruction  | 100.0                                | 51.1                                    | 26.9                                      | 38.8%   | 32.8%                | 26.1%                | 2.2%               |
| Nanhe     | Before Reconstruction | 67.1                                 | 127.0                                   | 43.5                                      | 18.8%   | 19.2%                | 23.3%                | 38.7%              |
|           | After Reconstruction  | 100.0                                | 132.9                                   | 73.8                                      | 5.8%  | 40.0%                | 13.8%                | 40.4%              |

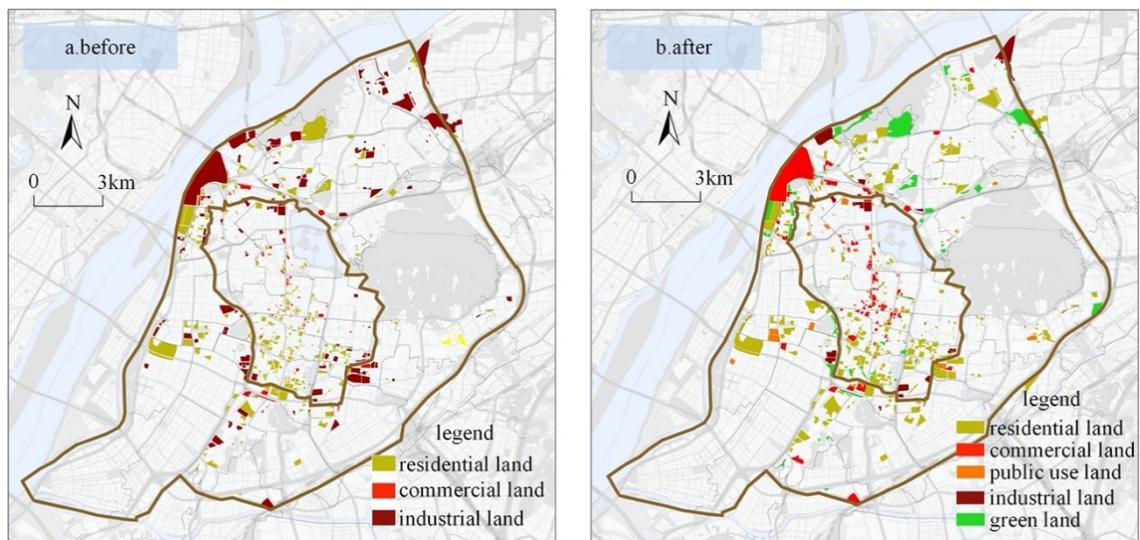
Data source: According to the data provided by Nanjing Housing Security and Real Estate Bureau.

## 6. Social Space Effect of Shantytown Reconstruction

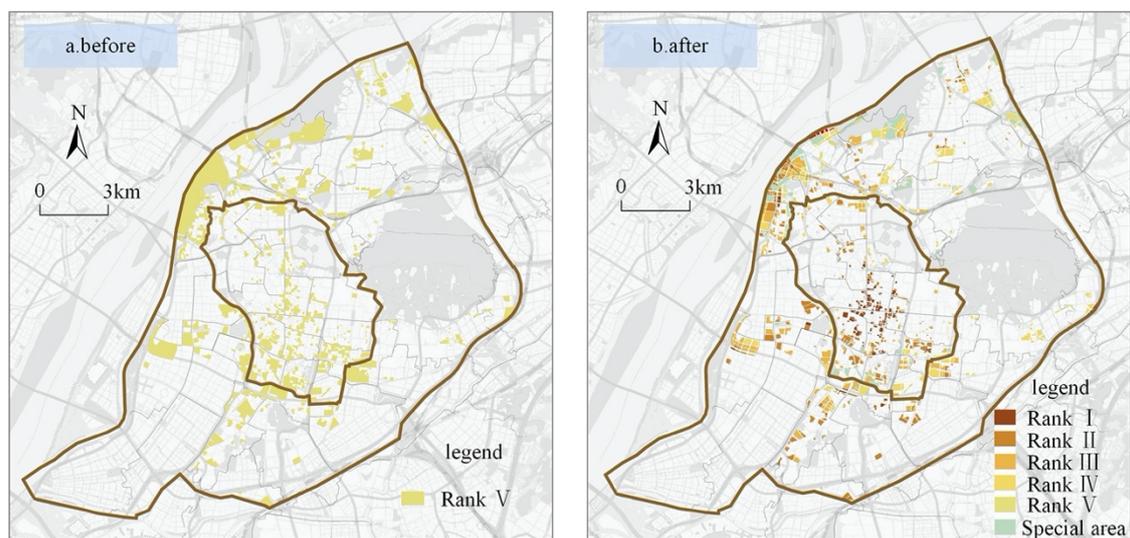
### 6.1. The Gentrification of Inefficient Space

The shantytown reconstruction is a comprehensive and high-end reconstruction process of urban low-efficiency space utilization. After the shantytown reconstruction in Nanjing, the former shantytown space not only takes on a new look in terms of environmental landscape, but also significantly improves urban function and utilization efficiency. From the perspective of the change of land use nature (Figure 3), the land natures of shantytown are mostly residential, industrial and a small amount of commercial land. After the shantytown reconstruction, the shantytowns in the inner city are mainly used as commercial and public supporting land. Especially, the residential land in the urban center is mostly converted into commercial land; the industrial land in the periphery is mostly transformed into residential land, commercial land and public green space, while the low and old residential areas are mostly redeveloped into high-end hotel apartments and closed communities. From the change of land use intensity (according to the standard land use intensity in Nanjing, it can be

divided into six categories: intensity zone 1 (high intensity, residential plot ratio > 2.3, commercial > 5.5); intensity zone 2 (medium high, residential 1.9–2.3, commercial 3.5–4.5); intensity zone 3 (medium, residential 1.6–1.9, commercial 2.5–3.5); intensity zone 4 (medium and low, residential 1.3–1.6, commercial 1.5–2.5); intensity zone 5 (low, residential < 1.3, commercial < 1.5); and special control area (historical and cultural reserve, important ecological green space, etc.) (Figure 4), before the reconstruction, the intensity of land development in all shantytowns is low, but after reconstruction, the efficiency of land space utilization is significantly improved.



**Figure 3.** Land use function before (a) and after (b) shantytown reconstruction.



**Figure 4.** Land use intensity before (a) and after (b) shantytown reconstruction.

After the shantytowns of Xijie and Nanhe were reconstructed, the intensity of land development and the nature of land use also changed accordingly (Table 3). The Xijie area is planned as a city functional area integrating high-end residence, waterfront commerce, creative office and open space, while the Nanhe area is positioned as a waterfront leisure and sightseeing area integrating comprehensive functions such as business office, commercial service and residential apartment. With the renewal of the landscape environment, the “rent gap” of land will be fully activated and fully released, and the space value and real estate price will rise accordingly. High-level talents and high-end industries will be attracted and settle in, and the original traditional manufacturing, residential functions and population

will be replaced, that is, “gentrification” process [28]. For example, Xijie area, which was auctioned with CNY 9.81 billion in 2017, will be built into an open and low-density shopping center in the form of a block. Three hundred and ninety-three sets of hardbound Chinese-style courtyards with an area of 188–420 m<sup>2</sup> are planned, and the opening price is expected to be close to CNY 100 thousand/m<sup>2</sup>. The estimated sales price of high-rise closed houses planned and built in Nanhe area will also be more than 35 thousand/m<sup>2</sup>. This means that due to the space crowding out effect, caused by the “rent gap” bridging and raising the “capitalized land rent”, the 3479 shantytown residents in Xijie, 240 residents and 21 industrial enterprises in Nanhe will be replaced by residents with higher incomes and higher-level industries as a whole.

**Table 3.** Land use function and intensity before and after shantytown reconstruction of Xijie and Nanhe districts.

| Case Area | Floor Area (m <sup>2</sup> ) | Height Limit (m) | Plot Ratio | Land Use Nature |  |
|-----------|------------------------------|------------------|------------|-----------------|--|
| Xijie     | Before Reconstruction        | 44.04            | 7          | 0.93            | Residence  |
|           | After Reconstruction         | 49.88            | 7          | 1.05            | Residence, Commercial Office, Commercial Residence, Entertainment, Green Space |
| Nanhe     | Before Reconstruction        | 15.48            | 12         | 0.86            | Housing, Industry  |
|           | After Reconstruction         | 44.51            | 100        | 3.00            | Residence, Commercial Office, Commercial Residence, Green Space                |

Data source: According to the data provided by Nanjing Housing Security and Real Estate Bureau and Nanjing Bureau of Planning and Natural Resources.

### 6.2. The Spatial Shift of Poverty Space from the Center to the Periphery

Due to the small housing area and low income, for the poor group in the shantytowns in Nanjing, the compensation for demolition is not enough to pay for commercial housing. In addition, residents in shantytowns can enjoy certain preferential policies when purchasing resettlement housing. Therefore, purchasing and moving into affordable housing are their first choice, and may also be due to no other choice. The most affordable housing communities in Nanjing are located outside the beltway, and most of them are high-rise residential buildings with centralized and contiguous layout. Taking seven large-scale affordable housing areas in Nanjing as examples (Table 4). As the crow flies, the nearest one is 12 km away from the city center, and the furthest one is 21 km. It covers an average area of 1.23 km<sup>2</sup> and can accommodate 17,900 families. From the perspective of location and scale, it can be described as a huge community newly built on the edge of the city (Figure 5).

Low-income difficulty housing groups in the original shantytown have moved from “old and shabby” houses in the city to “large and new” houses in the outer suburbs. While their housing conditions have been improved, they also have to face the following costs and difficulties: (1) Moving to the outer suburbs does not mean the disappearance of poor groups in shantytowns, but the spatial reconstruction from the center to the edge and from a dispersion to a concentrated area. Moreover, being far away from the city’s commercial, public transportation, medical and educational and other public service resources. The relocated residents’ life is inconvenient, and the transportation, employment and living costs significantly increase [10]; (2) this group has a high proportion of unemployed and retirees. The labor skills and educational level of practitioners are relatively low, mainly commercial service personnel and industrial workers, and the work is relatively unstable. Being far away from urban job centers means the reduction of employment opportunities, which increases the difficulty of upward mobility of low-income groups, so they are easily locked in the edge of urban space and social structure, forming solidified poverty areas [9]; (3) as large numbers of poor people gather in affordable housing communities on the edge of cities, they form a sharp contrast with newly built commercial housing communities, which is easily form residential isolation and social exclusion. This occurs as a result of the exposure of the gap between the rich and the poor and the stigma of affordable housing communities.

Additionally, due to the lack of housing value-added potential and residents' consumption ability, it is more difficult to get the favor of capital in the affordable housing area, which leads to the slow follow-up of supporting services, such as community commerce; (4) when the relocated residents lose the supporting mature area and the potential of future space appreciation, they also lose the original social network. It is difficult for them to establish a neighborhood network of mutual help and information exchange after moving into the affordable housing community. The large number of jobless, unemployed, people living on subsistence allowances, floating population, persons released after serving their sentence and released from re-education through labor, and other social marginal groups gathered in the affordable housing community have a negative impact on the comprehensive public security, governance of the community, as well as the formation of residents' community sense of belonging and sense of identity.

**Table 4.** Distance from urban center and scale of the Nanjing seven affordable housing areas.

| Affordable Housing Area    | Distance from City Center (km) | Floor Area (Ten Thousand m <sup>2</sup> ) | Floor Area (Ten Thousand m <sup>2</sup> ) | Residential Area (m <sup>2</sup> ) | Housing Size (Ten Thousand Sets) |
|----------------------------|--------------------------------|---|---|------------------------------------|----------------------------------|
| Shangfang Area             | 14                             | 125                                       | 200                                       | 140                                | 1.4                              |
| Daishan Area               | 15                             | 223                                       | 380                                       | 258                                | 3.2                              |
| Huagang Area               | 16                             | 135                                       | 211                                       | 135                                | 1.6                              |
| Dingjiazhuang Area         | 10                             | 85  | 167                                       | 128                                | 1.75                             |
| Mengbei Area               | 20                             | 127                                       | 228                                       | 127                                | 1.7                              |
| Oasis Machinery Plant Area | 21                             | 101                                       | 248                                       | 150                                | 2.0                              |
| Baishui Area               | 12                             | 65  | 120                                       | 66                                 | 0.9                              |
| Mean Value                 | 15.4                           | 123                                       | 222                                       | 143                                | 1.79                             |

Data source: According to the data provided by Nanjing Housing Security and Real Estate Bureau.



**Figure 5.** High-density resettlement communities on the edge of the city.

Thus, while the spatial displacement of residents from the center to the periphery improves their living environment, the residents' original social neighborhood structure is disrupted. Besides, they have also reduced their accessibility to various social resources to a certain extent. In other words, their social marginalization overlaps with spatial marginalization, further limiting their possibilities for upward social mobility.

### 6.3. Increased Unevenness of the Urban Core–Periphery Structure

The reconstruction of Nanjing shantytown fully explores the economic value of urban space, which not only promotes the inner renewal of the city, but also boosts the outer expansion of the city. Large-scale shantytown reconstruction means a large volume of housing demand, effectively stimulating the prosperity of the urban real estate market. Since the shantytown reconstruction, Nanjing has continuously increased the proportion of monetized demolition compensation, which is also intended

to encourage the shantytown residents to freely choose their houses in the commercial housing market. As there may be a certain gap between the compensation for demolition and the price of the new commodity houses on the original site, it is difficult to move back, and more shantytowns residents choose to buy houses on the outskirts of the city or in the outer suburbs with relatively low prices. Therefore, the shantytown reconstruction has stimulated the domestic demand of housing consumption and the rise of the overall urban house price and land price. It also leads to the further widening of the “rent gap” of the land in the undeveloped shantytowns, which stimulates the enthusiasm of local governments to continue to promote and sincerely participate in the spatial reproduction of shantytowns, and speeds up the process of urban suburbanization and residential space differentiation.

Under the value orientation of land efficiency and full utilization, shantytown reconstruction creates an imbalanced development of new social space in the city, which is extra visible in the aspects of residential space differentiation pattern, the benefit degree of residents in shantytown on state-owned and collective land, and sense of gain and satisfaction by removal and resettlement groups. Firstly, due to the scattered distribution of shantytowns in the city, the “gentrified” space is reconstructed into living space and place of consumption, to meet the needs of higher income groups, which is significantly different than the surrounding multi-story traditional communities, in terms of physical environment and neighborhood composition, thus causing more fragmentation of living space differentiation. The large-scale concentrated affordable housing communities constructed in the outer suburbs may become a new “depression” of urban development, and a larger-scale ensconced structure at the edges will appear, namely the unbalanced reconstruction of the residential space pattern. Secondly, due to the high proportion and large area of the collective land owned by the residents in shantytowns, physical resettlement is adopted for the housing demolition, and the resettlement is coordinated and implemented within the area. While the residential area in the shantytowns on state-owned land is small, thus mainly compensated in currency. The removal and resettlement housing are arranged by the municipal government, adopting the principle of nearby resettlement outside the area, and realizing the transformation from “farmer” to “citizen”. Therefore, it is better than the residents of the shantytowns on state-owned land in terms of the benefit degree of shantytowns. Thirdly, the low-income difficult housing groups forced to move into the suburban affordable housing community becomes the “real vulnerable groups” that need special assistance in the shantytown reconstruction. However, there is a mismatch between the needs of such groups and the resettlement policy bias. In particular, the poor groups in the shantytown areas on state-owned land in inner cities, have obvious adverse effects on personal work, lifestyle and living cost due to the large gap between the original residential location and the resettlement housing location, and are prone to being deprived of space in the shantytown reconstruction. In general, shantytown residents are disadvantaged throughout the rehabilitation process, and they lack bargaining power. As a result, they are rehoused in extraordinarily high proportions (95% for Nanhe and 80% for Xijie). Table 5 presents the statistics of the former shantytown residents’ satisfaction with the resettlement location, their willingness to relocate, and their satisfaction of demolition compensation. From the statistics, it can be seen that, generally, most residents are not satisfied with the choice of resettlement location because of the negative impact on their work, family, and life. Therefore, often the government needs to negotiate several times before they are willing to relocate. Thus, according to statistics, their willingness to move further in the next five years is as high as 69.4%.

**Table 5.** Satisfaction of households in the removal and resettlement of Xijie and Nanhe.

| Information of Head of Household                       |                                      | Xijie             |                | Nanhe             |                | Total             |                |
|--|--------------------------------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|
|  |                                      | Quantity (Person) | Proportion (%) | Quantity (Person) | Proportion (%) | Quantity (Person) | Proportion (%) |
| Satisfaction with the Placement Site                   | Satisfaction                         | 6                 | 5.9            | 30                | 33.0           | 36                | 18.6           |
|  | General                              | 49                | 48.0           | 43                | 47.2           | 92                | 47.7           |
|  | Dissatisfaction                      | 47                | 46.1           | 18                | 19.8           | 65                | 33.7           |
| Willingness to Move During Demolition                  | Active Relocation                    | 10                | 9.8            | 27                | 29.7           | 37                | 19.2           |
|  | Multiple Negotiations for Relocation | 61                | 59.8           | 57                | 62.6           | 118               | 61.1           |
|  | Unwilling to Move                    | 31                | 30.4           | 7                 | 7.7            | 38                | 19.7           |
| Satisfaction of Demolition Compensation                | Satisfaction                         | 13                | 12.7           | 22                | 24.2           | 35                | 18.1           |
|  | A little Dissatisfaction             | 61                | 59.8           | 59                | 64.8           | 120               | 62.2           |
|  | Dissatisfaction                      | 28                | 27.5           | 10                | 11.0           | 38                | 19.7           |
| What Does Suburban Relocation Affect Families the Most | Work                                 | 22                | 21.6           | 23                | 25.3           | 45                | 23.3           |
|  | Family Lifestyle                     | 18                | 17.6           | 23                | 25.3           | 41                | 21.2           |
|  | Family Cost of Living                | 25                | 24.5           | 16                | 17.6           | 41                | 21.2           |
|  | Family Recreation                    | 25                | 24.5           | 14                | 15.4           | 39                | 20.2           |
|  | Education for Children               | 12                | 11.8           | 15                | 16.4           | 27                | 14.1           |
| Are You Planning to Move in the Next Five Years        | Yes                                  | 67                | 65.7           | 67                | 73.6           | 134               | 69.4           |
|  | No                                   | 35                | 34.3           | 24                | 26.4           | 59                | 30.6           |

Data source: According to 193 telephone interview questionnaires of Xijie and Nanhe.

## 7. Conclusions and Discussion

### 7.1. Evaluation of Gains and Losses of Shantytown Reconstruction

The primary purpose of the state's large-scale shantytown reconstruction is to benefit the people and promote living in peace and stability. The priority is to ensure that low-income groups with housing difficulties will change from "having a place to live" to "having a livable place". This demonstrates the central government's firm determination to improve people's housing conditions. For the urban government that implements the shantytown reconstruction, it is not only a simple livelihood project distributed by the central government, but also an effective tool for local governments to manage cities, expand domestic demand for residential consumption, improve the quality of urban development and increase land revenue. The project of Nanjing shows that shantytown reconstruction has positive effects, such as improving urban living conditions and landscape environment, avoiding inner-city decay and the appearance of "slums", fully tapping the potential economic value of inefficient land, and promoting high-end restructuring of spatial and functional structure. However, due to the arduous political task of shantytown reconstruction, and numerous participants with complex interest relations, it is difficult for the urban government to take into account the people's livelihood and development perfectly, and an imbalance between "urban operation" and social equity is likely to occur.

In the context of neo-liberal globalization competition, shantytown reconstruction is the product of local government's pursuit of political and economic benefits within existing policy framework, in order to complete the political tasks set by higher authorities and to achieve the maximum balance<sup>15</sup> in the between social and economic benefits. In essence, shantytown reconstruction is a process of reproduction and redistribution of social space resources under the guidance of the government, as well as a spatial mapping process in which local governments at all levels, urban growth alliance, shantytown residents and other parties play a game of multiple interests. In the game in which multiple stakeholders strive to maximize their own benefits, the urban growth alliance try to fully maximize the "rent gap" benefits, while the residents of shantytown are at a disadvantage when mediating with the government and developers [29]. Among them, the most prominent manifestation is that the city government, in an effort to reduce the financial expenditure of removal and resettlement, centrally planned and constructed the affordable housing in the outer suburbs with lower land cost. Government pays more attention to the improvement of the physical environment of shantytown residents, and pays insufficient attention to such issues as the perfection of living facilities, living and employment costs of residents, a sense of belonging and identity in the community, etc. And the

marginalized and concentrated resettlement of the economically disadvantaged groups is likely to lead to spatial deprivation and the continuation of poverty.

### 7.2. Policy Response of Shantytown Reconstruction

Poverty is usually highly related to “social disadvantages.” The low-income residents who originally lived in shantytowns are in a state of lack of economic and social capital. Once such groups are marginalized and centralized in the outer suburbs, they will produce a coupling of social and spatial disadvantage, that is to say, “socio-spatial disadvantage” [30]. This will not only lead the poor groups into a long-term poverty trap, but also have a negative impact on urban spatial balance and sustainable development. Therefore, it is necessary for local governments to give more comprehensive and adequate humanistic care, and a policy preference to shantytowns residents, especially the low-income groups in state-owned land shantytowns, when selecting sites to build affordable housing communities and relocating and resettling shantytown residents.

First of all, in the current process of shantytown reconstruction, the government is only addressing the quality of housing for shantytown residents. However, as mentioned above, although the quality of housing has been improved, the residents have been deprived of their life chances to a certain extent. Therefore, local governments should explore new supply modes of affordable housing, such as “common property rights” and “renting and selling at the same time”, broadening the supply channels of affordable housing, resettle as close as possible to the public transport nodes, help residents rebuild their social life, alleviate the increase in the cost of living and employment of poor groups brought by the shantytown reconstruction, and improve the happiness and sense of gain of the residents in the resettlement of the shantytown.

Second, Nanjing has relocated residents of former shantytowns in the inner city to several large subsidized housing communities on the city’s outskirts, which has contributed significantly to the concentration of poverty. Several studies have shown that poverty clustering can create a range of social problems. Local governments should make extensive reference to the experience of social cohesion when implementing shantytown reconstruction. For example, social integration can be promoted spatially by mixing resettlement housing with ordinary commercial housing in the same area.

Third, as noted earlier, the nature of state-owned urban land and collective rural land ownership in China determines the socially beneficial nature of shantytown reconstruction. As a result, it is important to seek the balance between the government and the market, fairness and efficiency, reasonably define the role of the government and the market, improve the participation of the market participants, and give full importance to the key role of the government, in protecting the bottom line and promoting fairness at the same time. For the “hard bones” left over from the reconstruction, which is difficult to balance with funds, the idea of regional balance and comprehensive benefit balance should be adopted to win the battle of shantytown reconstruction.

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