

The Community Renewal of Shantytown Transformation in Old Industrial Cities: Evidence from Tiexi Worker Village in Shenyang, China

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Abstract: There are many problems, such as poverty, unemployment, poor infrastructure and how to improve the ecological environment, in the shantytowns of old industrial cities. Shantytowns are the most centralized areas with different contradictions, referred to as the ‘problem areas’ of urban sustainable development. The shantytown transformation of old industrial cities is a typical process of unit community disintegration, which is reflected not only in the reconstruction of physical space but also in the community renewal of social spatial integration and culture reconstruction. Based on qualitative research, questionnaires and in-depth interviews, taking Tiexi Worker Village in Shenyang as a research case, this paper attempts to analyse the characteristics and driving forces of the community renewal of shantytown transformation in old industrial cities. We found that the physical space of Tiexi Worker Village has changed considerably, which is embodied in its land use structure, living environment and community service facilities, reflecting the development of community function from simple industrial function to comprehensive functions. The residents in this community have experienced a transformation from a period of homogeneity to one of heterogeneity. The social network of the community has been destroyed. Social stratification, social differentiation and higher fluidity have occurred. Community renewal is mainly affected by macro factors such as policy regulation, economic driving, condition constraints, and micro factors such as residents’ choice of living space and willingness to renew their communities. The transformation policy of the old industrial zone and the development policy of the new urban area are the fundamental and deep-seated reasons for the renewal of Tiexi Worker Village, which determine the direction of the renewal and development of the community. The paid use of land and the development of the real estate industry are the direct stimulating factors for the renewal of Tiexi Worker Village, which become the direct reasons for the spatial transformation. The changes in the population in urban and rural areas and the promotion of traffic are the driving factors for the renewal of the community, while the choice of residents and their willingness regarding community renewal are the endogenous forces for promoting community renewal. Finally, the author attempts to put forward a model of the interlaced mechanism of the forming of community renewal at the macroscopic and microcosmic levels, which are the urban renewal and reconstruction and social space differentiation of community residents, respectively.

Keywords: old industrial city; shantytown; community renewal; mechanism; Tiexi Worker Village

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1 Introduction

Community renewal is a subsystem of old city renewal (Yang and He, 2017). The concept of community renewal is evolving with the process of urban develop-

ment. From the perspective of the evolution of urban development, community renewal in Western countries has experienced different stages from large-scale transformation and gradual renewal to community regeneration. In the 1950s, with the post-war reconstruction,

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some cities in Europe and the United States began to rebuild their urban centres and slums (Jacobs, 1961; Mumford, 1961). Among these approaches, the transformation of slums adopted the method of transferring residents, tearing down all houses and listing the land for auction to be replaced with high-tax projects. In essence, this approach aims to move slums from one place to another. In the process of migration, the original neighbourhood and society no longer exist (Jacobs, 1961). In the 1960s–1970s, governments gradually realized that the importance of community renewal was to prevent the decline of communities. The more serious the decline of communities is, the higher the cost of urban renewal. Community neighbourhood renewal, led by the government and based on public resources, took a small-scale and gradual approach to urban renewal. Scholars generally believe that community renewal in this period emphasizes public participation and is more inclined towards community governance, economic recovery and neighbourhood self-construction. This not only improves the living conditions of residents but also increases employment opportunities, which is conducive to the formation of a harmonious home for the middle class and promotes neighbourhood harmony to a certain extent (Rohe, 2008). In the 1980s, the city redevelopment of taking the market as the leading mode became mainstream, and community renewal was becoming a ‘wonderful improvement’, positively affecting the quality of the building and the surrounding environment, increasing entertainment, transportation and health facilities, and increasing trade opportunities. Moreover, community renewal paid more attention to family stability and community cohesion than ever before (Keare and Paris, 1983). After the 1990s, entering the stage of urban regeneration, the comprehensive renewal of the physical economy and society has become a new concept of urban renewal (Lawson and Kearns, 2010; Liang et al., 2020). Sustainable and multi-objective humanistic community rejuvenation has become increasingly important (Talen, 2006). Improving people’s community experience (Talò, 2018) and enhancing community satisfaction (van der Ton and van Bortel, 2016) have become the principal goals of community renewal (van Bortel and Mullins, 2009). Some scholars have put forward the connotation of community micro renewal aiming at community construction, pointing out that the renewal content includes the overall construction of

culture, industry, environment, education, public administration, *etc.*, emphasizing that the active participation of community residents is the most important force for transforming and activating the community, and the community adopts the promotion path from the community to the local government (ScottHanson and ScottHanson, 2004). In other words, with the development of urbanization and urban renewal, community renewal aims to continuously formulate corresponding policies and measures to improve the development process of community physical space, social neighbourhood relations, community culture and other problems to carry out the systematic transformation and management of urban communities.

Research on the theory of old city renewal started late in China. In the early 1980s, Professor Wu Liangyong first proposed the theory of ‘organic renewal’ in the case of ‘Ju’er Hutong renewal’ (Wu, 1988). Then, many scholars began to explore the theory of old city renewal. In the 1990s, the perspective of old city renewal was expanded to the community field, and the concept of ‘community construction’ was put forward by the Ministry of Civil Affairs in 1995. In this way, community renewal entered people’s fields of vision. Some scholars introduced the community renewal model in developed countries, such as the ‘self-help community’ in Britain (Ye, 2006), ‘endogenous community’ in Japan (Gao and Li, 2017), and ‘community garden’ in Germany, and provided the experience and enlightenment that can be used for reference (Shan, 2017). Starting from the theoretical framework and research system of community renewal, some scholars have discussed the content and evolution process of community renewal from different perspectives, such as urban renovation and restoration (Yang, 2018), micro renewal (Zuo et al., 2018), cultural capital (Huang and Zhou, 2018) and healthy cities (Zhou and Sun, 2018). Since the mid-1990s, with the transformation of urban planning, the research results of community renewal in China have increased. Some scholars have focused their research on the field of community planning, studying community planning theory, carrying out community planning practice, cultivating a sound community planning development environment, and building a localized community planning system (Sun et al., 2017). In recent years, some scholars have focused on the interaction between humans and land in the study of community construction,

that is, the physical environment of the community, the social environment of the community (Huang and Zhou, 2018) and the life of community residents, aiming at the phenomenon of residential suburbanization, the decline of traditional industries in the suburbs, the gentrification process experienced by the inner city's traditional neighbourhoods, and the emergence of a new access control community (Zhang, 2014). According to the empirical and strategic research of specific communities in China, the fields involved are changed from single-space improvement to comprehensive aspects such as the implementation subject, policy system, humanities, and community empowerment (Wang, 2006; Hong and Zhao, 2013; Liu et al., 2018). In addition, some scholars take the unit community, formed in the unique national conditions of China, as the research object, mainly discussing its spatial evolution process (Li, 2018). In general, the study on community renewal in China has mostly been performed at the macro level and has tended to shift to the micro level in recent years. However, the empirical areas are mostly concentrated in first-tier cities with large population scales and high levels of urban economic development, such as Beijing (Liang, 2019), Guangzhou (Dai et al., 2019) and Chongqing (Deng and Tan, 2018). There have been few empirical case studies on the community renewal of old industrial cities. In recent years, the Chinese government has attached great importance to the renovation of urban shantytowns, especially for the renovation of old industrial cities, and the renewal of a large number of poor shantytowns and their returning communities evolved from factory yards has become the most important issue for the stability and livelihood of urban society. The transformation of shantytowns in old industrial cities is closely related to the transformation of unit society brought about by the restructuring of state-owned enterprises in old industrial cities. In the past, with the decline and bankruptcy of enterprises and the decline of public service facilities, most unit communities inhabited by workers in state-owned enterprises have become poverty-stricken communities, with many old people and low-income households, and have gradually become the focus of urban shantytown reconstruction. These poverty-stricken communities with prominent livelihood problems have brought about new topics regarding community renewal. In this paper, Shenyang, a typical representative old industrial city, is selected as the re-

search object, and the typical unit-type shantytown of Tiexi Worker Village in Shenyang is surveyed, which is of great practical significance for micro-level community renewal studies.

2 Materials and Methods

2.1 Study area

Worker Village is situated in the southwestern Tiexi District of Shenyang City, starting from Zhaogong South Street in the east, along the Shenshan railway in the west, along Nanshixi road in the north, and next to Shenliao Road and Shenxin Road in the south. It covers an area of 3.34 km², has a population of 54 700 people and governs 14 communities (Fig. 1). The total of 143 Soviet-style three-story buildings were successively built here, and more than 40 state-owned enterprises, such as Shenyang Smelter, Shenyang First Machine Tool Plant and Shenyang Cable Factory, built a large number of family dormitories in the areas from 1952 to 1957 (Liu and Wang, 2008). The employees of major enterprises and their families lived here. Service facilities were complete, forming a 'unit society' with perfect functions. After the 1980s, due to the institutional mechanism market and other reasons, the benefits of Tiexi industrial enterprises began to decline, and workers were laid off. After half a century, residential buildings needed to be renovated and rebuilt, and the living environment needed to be improved. The 'residential area' had transformed into a 'dangerous housing area'. In 2006, the district government adjusted the transformation plan according to the adjustment and transformation plan of the old industrial bases, listed more than 100 buildings of Worker Village in the urban shantytown transformation plan, carried out the large-scale demolition and transformation of dangerous houses, and actively built a new type of government-subsidized residential quarters. There were still 24 old buildings in 936 households that had not been relocated by 2013 because the transformation of this shantytown was carried out in stages and batches. In 2015, the old buildings became the provincial historical and cultural blocks, which belonged to the historical protection building. There was no progress in the transformation of this shantytown. Because the old buildings were in disrepair for a long time and all kinds of infrastructure were seriously ageing, 936 households were eager to move out of the area.

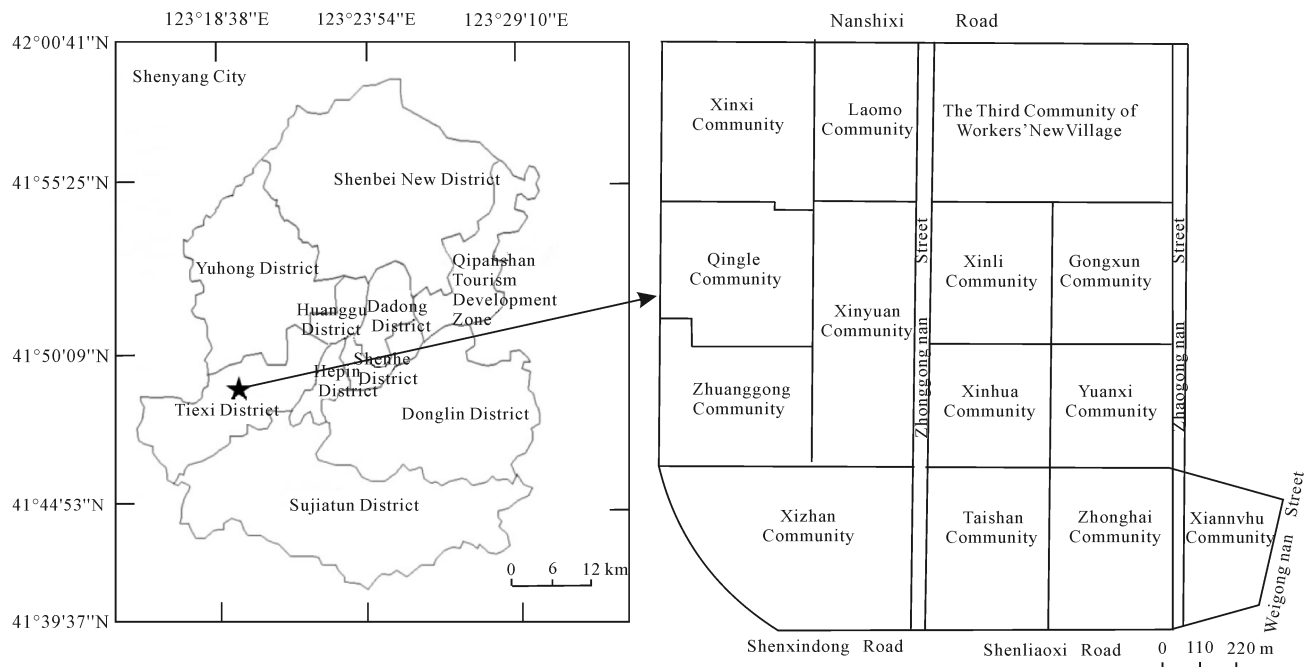


Fig. 1 The location of the study area and administrative map of Shenyang City, China

In the end of 2017, the residents living in the old building officially signed the housing expropriation compensation agreement. In early 2018, these residents received resettlement compensation, and the remaining 24 old buildings began to be demolished. The last piece of ‘Gongxun plot’ in Worker Village was auctioned off at the end of 2018. The whole shantytown reconstruction plan of Worker Village will be completed by the end of 2020.

As the largest gathering area of heavy industry and equipment manufacturing workers in China, the renewal and transformation of Shenyang City involves not only the improvement of the living environment of the old industrial city but also the process of industrial culture change, urban function and social space complexity: from the simple industrial life function to the integration of science, education, trade and life service areas. Its social space has gradually evolved from a purely unit community to a mixed space of various types of residents under the dual role of government and society.

2.2 Methods

In May 2016, we conducted a field visit to the third community of the New Worker Village, which had completed shantytown transformation, and Xinli community,

which half completed the process of transformation. In December 2018, we conducted a supplementary survey on the Gongxun community which had completed land clearance. Three communities with different characteristics were selected for household survey. The sample selection mainly considered the selection of different types of communities and the uniformity of spatial distribution, and the household random survey was adopted. Stratified sampling method was used. The respondents were local residents who had moved back (48.4%), the floating population (48.4%) and community managers (3.2%). To ensure the scientificity and objectivity of the questionnaire and reflect the wishes of the whole group through the respondents, interviewees included individuals of different genders, ages and educational experiences (Table 1). Through the methods of questionnaires and in-depth interviews, the characteristics of community residents, the space-time utilization of daily travel activities, community identity, collective action ability, and resident living desire in the process of shantytown renovation in Shenyang were surveyed. On this basis, the characteristics and formation mechanism of community renewal in shantytowns were analysed. A total of 300 questionnaires were distributed, and 279 valid questionnaires were recovered.

Table 1 The basic attributes of the interviewees

Item	Subitem	Number of samples	Sample proportion (%)
Gender	Male	133	47.8
	Female	146	52.2
Age	Aged under 25 years	18	6.3
	26–30 years old	27	9.8
	31–40 years old	47	16.8
	41–50 years old	60	21.5
	Aged over 51 years	127	45.6
Education	Primary and secondary education	99	35.5
	High school education	51	18.4
	College education	79	28.3
	University and above education	50	17.8

3 Empirical Analysis of the Community Renewal of Tiexi Worker Village

3.1 Physical spatial change

3.1.1 Intensive utilization of land

The physical ecological environment of the community has changed greatly against the background of economic transformation. During this change in the physical ecological environment, the land use structure shows intensive characteristics, which can be regarded as the response of the micro scale at the community level after the macro adjustment of the urban land use structure. The land use structure of Tiexi Worker Village in 1998, 2008 and 2018 was compared according to the interpretation of the remote sensing map of Shenyang City (<http://www.bigemap.com/reader/download/detail201802016.html>). The proportion of industrial land (–42.3%), storage land (–7.1%) and administrative land (–5.4%) decreased, while the proportion of residential land (22.6%), commercial land (5.8%), scientific research and design land (4.1%) and green land (13.2%) increased (Fig. 2). The change in land use structure reflects the improvement and adjustment of community

function: it has changed from a single production community with industrial and residential functions as the main body prior to the transformation to a comprehensive community with residential, commercial and service functions after the transformation. The commercial land along the street grew rapidly, and the production atmosphere declined significantly.

3.1.2 Improvement of community residential environment

The change in physical space in the transformation of Worker Village can be multi-dimensionally compared with the aspects of the housing structure, spatial form, functional layout, building quality, supporting facilities, green landscape and public space. The results are shown in Table 2.

In view of practical problems such as high building density, small housing area, disordered functional layout, poor environmental quality, fewer supporting facilities and green leisure space in the residential area of Worker Village before reconstruction, the area of the house after reconstruction has increased, each household has its own independent kitchen and toilet, the housing type is convenient for life, and the layout is more reasonable.

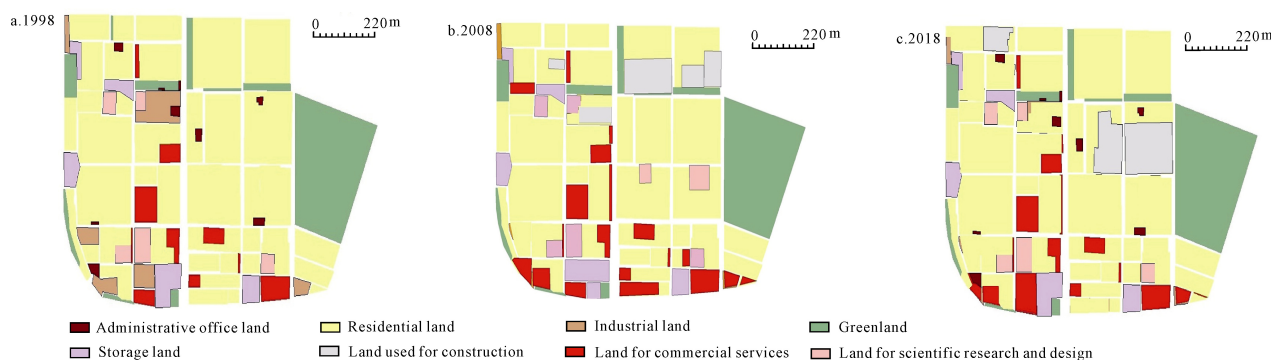
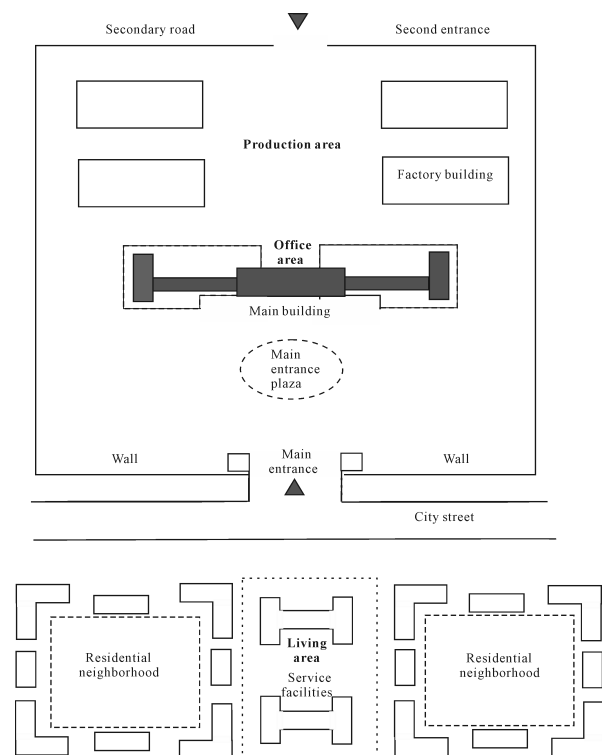
**Fig. 2** The structure comparison of land use in Tiexi Worker Village in 1998, 2008 and 2018

Table 2 Physical space change of the community during the transformation

Item	Before transformation	After transformation
Housing structure	There are houses with building areas of 50–60 m ² , and some small apartments have an area of 30–40 m ²	There are houses with a building area of 70–80 m ²
Spatial morphology	The large-scale courtyard space built in the 1950s increased the residential density and broke the space order due to this addition and intervention in the 1980s	The diversified courtyard space enriches the overall living space, which is mainly semi-closed and semi-open
Functional layout	It is a typical ‘unit settlement’ mixed with residential areas and commercial service areas	The functional areas are clear
Building quality	The building has been in disrepair for a long time and is obviously dilapidated and ageing	The quality of demolished and rebuilt houses is improved
Supporting facilities	The surrounding supporting facilities of the old residential areas are relatively complete, while the supporting activities within the residential areas are relatively lacking	Municipal facilities have been transformed, and old buildings have been used to set up nursing homes, elderly activity centres, etc
Green landscape	There are parks and other public greenbelts around, with good greening foundation, but there are few greenbelts in the residential area and a lack of daily maintenance	The original public green space is maintained, and the new green corridor is built
Public space	The per-capita area is small, and the enclosure is serious	Public space is added, and enclosure behaviour is strictly controlled

In terms of spatial morphology, the original building courtyard space is retained. Through reorganizing the ‘courtyard elements’ of different attributes, the diversification of the courtyard space not only breaks the original rigid courtyard space but also enriches the overall living space. In the old functional layout, the problems of mixed residential area and commercial service area, the upper part for residential and the lower part for commercial services or offices, are solved. After the transformation, the functional division is redefined. There are basically no outdoor venues and supporting facilities for sports and leisure in the original residential area, especially the lack of facilities suitable for the elderly. There is less green space in the old settlements, and a small number of old settlements have better greening foundations but only a single tree species, and there are just one or two tall trees. Due to the lack of daily maintenance and pruning, combined with climate impact and human-made damage, the landscape effect is poor. The renovated residential area has added public green space, and the green coverage rate has been substantially improved. It has been fitted with anti-pollution, anti-noise species and shade-tolerant plants, which has expanded the living function of the green space. In addition, the old residential area is a typical ‘unit community’. The traditional industrial enterprise factory area and residential area are combined. The unit community is the basic unit of the residential community, and the boundary is closed, which leads to the lack of a relatively open pub-

lic area (Fig. 3). After the relocation of the factory, the enterprise is separated from the residential area, and the unit community is broken. The layout of the residential area is combined with commercial, park and green squares, and the new residential area has relatively sufficient public space for rest, communication and entertainment (Fig. 4).

**Fig. 3** Combination mode of factory area and residential area

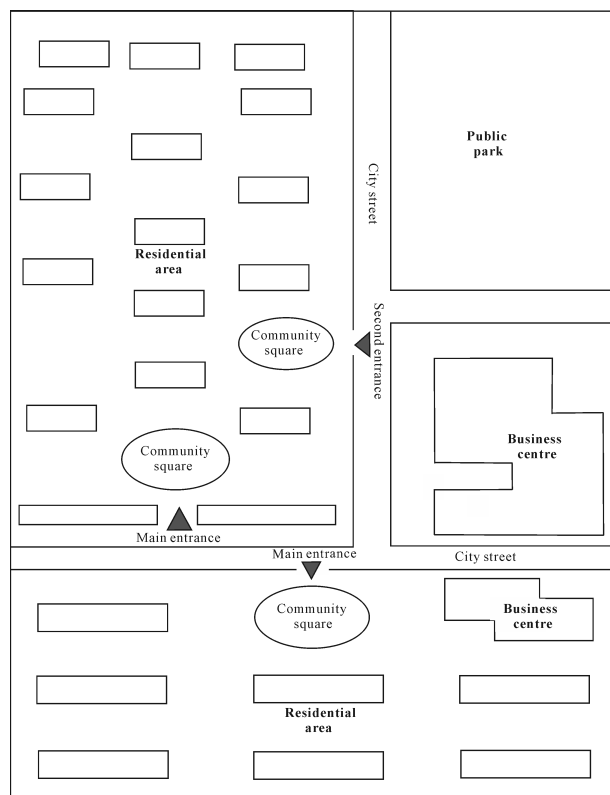


Fig. 4 Layout pattern of residential area after factory relocation

3.2 Social spatial change

3.2.1 The complexity of composition of community residents

In the era of the planned economy, the composition of residents in Worker Village was relatively singular: most residents were employees of large state-owned enterprises and their families. In the 1980s and 1990s, as enterprises declined, most of the residents were elderly, poorly educated and long-lived retired workers or laid-off and unemployed low-income groups such as low-income households, low-income marginal households and industrial workers, which comprises the traditional sociodemographic structure of ‘aging’ and ‘extreme poverty’. After the transformation of shantytowns and the renewal of communities, the composition of community residents has been greatly different and has become increasingly complex (Table 3).

From the perspective of age composition, the old, middle-aged and young people in the newly renovated Worker Village are combined: approximately 40% of them are over 60 years old, the proportion of young and middle-aged people is basically the same, and the lowest proportion of students under the age of 20 is

Table 3 The characteristics of residents in Tiexi Worker Village transformed

Community residents		Age characteristics	Income characteristics	Educational characteristics	Occupational status
Original residents	Community resettlement residents	Over 55	Lower income	Primary and secondary education	Basic and marginal households
	Children of community resettlement residents	25–40	There are two categories: one is no stable source of income, and the other is in the middle and low level	High school education and above	Workers, staff and part-timers
	Residents who have moved away but still have real estate in the community	Over 50	There are two categories: one is no stable source of income, and the other is in the middle level	Junior high school and senior high school education	Mainly retired, technical and part-time workers
Newly settled residents	White-collar workers	25–40	The average monthly income is more than 6000 yuan, which is in the upper-middle level	University and above education	Engaged in education, business or management
	Blue-collar workers	30–45	The average monthly income is 4000–5000 yuan, which is in the middle level	College education	Workers, technicians and staff
	Individual businesspeople	40–50 and some 20–30	The average monthly income is more than 5000 yuan, which is in the middle and upper level	Focusing on high school education	Mainly engaged in catering, warehousing, transportation and other traditional service industries
	Informal employment	Most people are 45–55	People with average monthly income less than 3000	Education level of junior high school and below	Freelance

approximately 3%. The results of the income survey show that the income level difference is very obvious. From the perspective of education composition, four types of academic qualifications, namely, primary school, junior high school, senior high school and university, account for a relatively average proportion. Elderly individuals over 60 years old mainly have primary school education, while the young have higher education. The occupational composition is diversified. There are more retired and unemployed residents, and the proportion of workers, staff and technicians is relatively high. In other words, since the reconstruction and renewal of Worker Village, the basic situation of internal residents has changed substantially, from a single homogeneous social population structure to a differentiated and complex structure.

3.2.2 The expansion of the scope of time and space for daily activities of community residents

The change of social space in community renewal is reflected not only in the reconstruction of community residents, but also in the utilization of time and space in their daily activities. We investigated the time use of daily activities of the residents in Worker Village. The survey activities included work activities, life activities (housework, private affairs and sleep) and social activities (shopping, entertainment and social interaction). The survey results show that the use of time for residents' daily activities has undergone profound changes before and after community renewal. Before the renewal, the main time allocation of residents focused on work activities and life activities, and social activities accounted for a relatively small proportion. The reason is that the residential area of Worker Village before the

renovation was a typical unit community, which was manifested in the deep unit characteristics of community service. And service facilities were mostly unit-centred and limited to the inside of service units, which greatly affected the life of community residents, resulting in shopping, entertainment, social interaction and other social activities are difficult to separated from work activities. Besides, the single way of commuting and the lack of community service facilities can not provide more opportunities for social activities and convenient community services, which lead to simple daily activities of residents and lack of community vitality.

We conducted a time-geography life log survey on the use of time for daily activities of residents after the community renewal. The survey content was the time allocation of residents' activities within a week. In order to better reflect the differences in the time utilization of residents' daily activities, we conducted the cluster analysis on the survey results. The results are shown in Table 4.

C1 is a work-oriented type, the working hours of such residents account for 43%, and less time is allocated for other activities; C2 is a housework-oriented type, and their housekeeping activities account for 36% of time allocation; C3 is an entertainment-oriented type, with entertainment time distribution accounting for the main part; C4 is a work-entertainment type, with work time as the dominant time, accounting for 34%, and entertainment time is also enough; C5 is a work-housework type, with long working time (29%), and housework time (15%); C6 is a housework-entertainment type, with housework time accounting for 30%, entertainment time accounting for 13%, and other activity time is less.

Table 4 Time distribution of daily activities of the surveyed residents (Hours and Percentage)

Item	C1 (43 people)		C2 (16 people)		C3 (21 people)		C4 (107 people)		C5 (64 people)		C6 (25 people)	
	<i>h</i>	%	<i>h</i>	%	<i>h</i>	%	<i>h</i>	%	<i>h</i>	%	<i>h</i>	%
Work	10.2	43	2.1	9	0.05	0	8.12	34	7.06	29	0	0
Housework	1.32	6	8.52	36	1.21	5	0.45	2	3.7	15	7.09	30
Personal affairs	2.01	8	2.25	9	1.94	8	2.2	9	2.08	9	2.36	9
Sleep	7.53	31	9.61	40	8.5	35	8.37	35	8.06	34	9.52	40
Shopping	1.05	4	0.98	4	0.68	3	0.41	2	1.26	5	0.86	4
Entertainment	0.92	4	0.31	1	9.72	41	3.16	13	1.08	5	3.23	13
Social communication	0.97	4	0.23	1	1.9	8	1.29	5	0.76	3	0.94	4
Total	24	100	24	100	24	100	24	100	24	100	24	100

According to different types of time utilization, the spatial characteristics of the surveyed residents' activities are analyzed (Table 5). The work-oriented residents can be divided into two categories. The first type is the residents with fixed working hours. They have a wide range of activities and most of their working places are within 10 km. Due to the improvement of commuting mode and diversity of choices, the commuting distance, living radius and activity space of residents have been expanded, which is no longer limited to the vicinity of the factory area of the unit, nor just the block under the jurisdiction of the residential community. All places and spaces that can provide public services may be the scope of residents' activity space. The main activities of such residents at home are private affairs peak in the morning and evening, entertainment and housework at night, and the time allocation is stable and regular. The other is the self-employed. Their activity space is close to the residential area, and their working places are mostly in Tiexi District. They work longer than office workers. They often go out early and return late. They have little leisure and entertainment time and sleep time is lower than the average level. The two types of housework-oriented and entertainment-oriented residents are mostly middle-aged and elderly retirees, who are less engaged in work activities. Most of the activities are carried out in their own homes. The space for outdoor entertainment activities is basically within 5 km. Their activity types are single, the activity space is relatively

narrow, and the activity time is more scattered, mostly concentrated in the morning and evening. The dominant activities and auxiliary activities of the three types of mixed time dominated residents determine the utilization of time and space. Besides work, the entertainment activities of the work-entertainment residents are concentrated in the outdoor noon, and the entertainment space is widely distributed, which is closely related to their workplace. Another peak period of entertainment is concentrated in the evening at home. In addition to work, the housework activities of the work-housework residents take up more time, concentrated in noon and evening. While entertainment and shopping activities are relatively less, mainly close to home. There are entertainment peaks at night at home, but the form of entertainment is relatively single, mainly watching TV and chatting. The housework-entertainment residents have a wide range of activities, even if they are 10 km away. The reason is that the basic living service facilities are no longer concentrated in the vicinity of the unit plant area, and the daily life of residents no longer revolves around the unit. Moreover, the requirements of residents for life services are more diversified, which also changes the demand of relying only on the internal services of the unit in the past, and expands the scope of residents' daily activities. Housework activities are concentrated in the morning and noon, entertainment and shopping activities are concentrated in the afternoon and after dinner and lasted for a long time.

Table 5 Summary of activity space of residents of different time use types (people)

Item	C1	C2	C3	C4	C5	C6
Workplace						
Worker Village Street	9	8	5	24	15	2
Tiexi District	12	8	0	36	27	0
Outside Tiexi District	22	0	0	47	22	0
Commuting mode						
Walk	5	7	2	8	6	2
Bicycle	2	4	2	5	6	0
Public transportation	19	5	1	68	45	0
Private car	17	0	0	26	7	0
Shopping space						
Residential area	2	4	6	6	8	2
Worker Village Street	11	10	8	29	18	13
Tiexi District	9	1	5	39	32	7
Outside Tiexi District	21	1	2	33	6	3
Spatial distance for recreation (km)						
0–2.0	12	8	7	13	18	6
2.1–5.0	23	5	9	37	34	9
5.1–10.0	8	3	5	36	9	8
More than 10.0	0	0	0	21	3	2

3.3 The difference of identity and belonging of community residents

Through in-depth interviews, the information about the identification and attribution of community residents is learned and collected. The content of in-depth interviews includes neighbourhood communication, community residents' satisfaction, and collective action ability. In the process of the transformation of the shantytowns in Worker Village, the identity of residents has undergone a dramatic change, that is, from the 'unit person' linked by the work unit to the 'social person' linked by the relationships among interests, geographical relations and residents' sense of identity and belonging. This is reflected in the neighbourhood interaction, participation in community activities, community satisfaction evaluation and collective action.

3.3.1 *The self-awareness of community residents is enhanced*

The self-awareness of community residents changes obviously with the renewal of the community, which is reflected in the neighbourhood interaction and the participation of community activities.

The method of neighbourhood interaction is mainly spontaneous group entertainment. The interaction of community residents is mainly based on their own hobbies and interests or fitness needs, rather than relying on unit organizations. For example, retired elderly people go in groups to Labor Park nearby for morning exercise. Middle-aged office workers organize 'swiftly walking groups' and 'square dance teams' in the evening. Young people spontaneously organize the 'pattern rope skipping group' and 'street dance group' in the evening.

'Now, I am retired. I do not sleep as much as I did when I was young. I go to Labor Park to practice Tai Chi and take a walk in the morning.'

'At night, there are 'swiftly walking groups' in the park nearby. We organize ourselves, form long lines and walk fast. Each team has its own fixed route and time, and some have their own music.'

'We are 'party friends'. At the beginning, it was played by three or two people who were familiar with each other. After a long time, some people who did not know joined in. What is the matter? It is alright.'

Whether or not to participate in community activities is entirely determined by residents' self-awareness, which is no longer a top-down organizational form in the period of the 'unit system'. Residents voluntarily

choose to participate in the activities of community organizations from the perspectives of whether it is conducive to their family or self-interest.

'The labor union of the factory used to engage in all kinds of cultural activities in the worker auditorium, and all the participants were from one unit. Later, the factory moved away. Now, we organize some recreational and sports activities during the annual festival in our community. Most of these activities are in the small square around homes. The chorus, gathered by our old fellows, actively participates every time.'

3.3.2 *Differentiation of community residents' sense of belonging*

Employees' sense of belonging to the factory and the unit has been constantly strengthened through the factory in charge of welfare before the transformation. The sense of belonging and working relationship of community residents are separated and differentiated, which is reflected in aspects of community satisfaction, community identity and collective action of residents after the transformation. In the community satisfaction survey, we mainly selected three indicators: community environment satisfaction, life convenience of residents and community service satisfaction.

Residents hold a 'positive' attitude and a 'negative' attitude towards the overall environment of the community, with great differences. At present, most of the returnees living in Worker Village have compared their living conditions and environment to those in the past. They think that the overall community has improved significantly after the renewal, and they express a 'positive' attitude towards the satisfaction of the overall community environment. However, most of the non-returnees, especially young people, have a negative attitude because of their short living time and lack of understanding of the original community, focusing only on the surface situation and horizontal comparison of the current living environment.

In the survey on the convenience of residents' lives, most residents hold a satisfactory or acceptable attitude. The main reason is that living facilities and production facilities were gradually separated after the renovation, and the focus of residents' lives began to shift from the unit to the living area. However, in regard to specific matters such as 'transportation, medical treatment, children's school, supermarket shopping, sports and fitness, and leisure and entertainment', the majority of 'incon-

veniences' are considered, and the choice is quite different due to residents' age, occupation, education background, *etc.*

In terms of community service satisfaction, most residents hold a negative or neutral attitude. In the past, all the welfare and security of residents were provided by the unit. Currently, they are all handed over to the community. Among them, the laid-off and unemployed people in the relocated households think that the community reemployment service and social security socialized service have more forms than content and do not play a substantive role. Elderly, disabled, and poor individuals and other special objects in the community generally think that social assistance and social welfare services are common. They think that the standard of assistance should be improved, the way of welfare supply needs to be improved, and the procedures need to be standardized. The difference in the survey results is more noticeable for the convenience and benefit services for community residents. For example, for health care services, security services, housekeeping services, intermediary services, information services and other aspects, residents with diverse attitudes have a balanced proportion.

In the survey of community identity, we choose neighbourhood evaluation as the main reference index. Some residents think that the neighbourhood becomes weak with the disintegration of the unit system. However, the survey results show that most of the residents think that the current neighbourhood relationship is more harmonious. When are asked about whether to say hello to neighbours, borrow things, keep in touch with each other, and whether to turn to neighbours for help the first time when encountering difficulties, the result is that more people hold a negative attitude. This reflects that community renewal makes the cognition of neighbourhoods more tolerant, and the neighbourhood atmosphere begins to fade.

Due to the changes in the degree of unitization and community identity after the renovation of Worker Villages, the interest expression orientation of community residents is also significantly different. The interest orientation of residents in 'unit type shantytowns' is generally consistent, and the collective action is strong. However, the composition of residents is complex; the interest orientation is diverse and not unified in transformed 'mixed residential area'. All kinds of forces off-

set each other, and the organization force is weak, so it is difficult to form a consistent collective action. Even if there is, it is decentralized, and fails to form a collective action based on the unified identity and interests of residents.

4 Analysis of Renewal Mechanism of Tiexi Worker Village

4.1 Macroscopic renovations of old industrial cities

The main reason for the renewal of Worker Village is the role of macro mechanisms at the urban level. These mechanisms include policy regulation mechanisms, economic driving mechanisms and condition constraint mechanisms.

4.1.1 Policy regulation mechanisms

Policy regulation mechanisms are the fundamental and deep-rooted reason for community renewal and determine the direction of community renewal and development, including the transformation policy of the old industrial zone and the development policy of the new urban district. Since the 1990s, Shenyang has carried out a comprehensive renovation of old urban areas, transferring some traditional industries to match the development of relatively backward areas (Guan et al., 2018). Shenyang has fully developed its new urban area, and the productivity and population gather in the suburbs. From 1996 to 2010, the spatial expansion area of land use in Shenyang was 218.6 km², with an average annual growth rate of 15.61 km²/yr, which was the most rapid period of urban land use spatial expansion (Sun et al., 2011). Due to the mixture of factories and residential areas in the old industrial area of Tiexi, as well as the large amount of industrial land, per-capita residential land is small, and the per-capita areas of public green space and roads are smaller, which affects the quality of the living environment. According to the standards set by the Ministry of Housing and Urban-Rural Development, the area of residential land should account for 25%–40% of the urban construction area, the area of industrial land should account for 15%–30%, and the area of public management and public services should account for 5%–8%. Compared with the above standards, the per-capita living area of the old industrial area in Tiexi should not be less than 28.0–38.0 m², and the per-capita park green area should not be less than 8.0

m². The statistical data in 2000 showed that the proportion of residential land in the old industrial area of Tiexi was close to the lower limit of the national standard, and the per-capita housing area was only 6.4 m². The environmental conditions need to be improved. With the relocation of enterprises in the old Tiexi industrial zone, Tiexi District plans again, adjusts its land use structure, relocates its regional function, and improves its ecological and living environment, which objectively leads to the redistribution of residential space and the continuous renewal of the original residential area.

4.1.2 Economic driving mechanisms

Economic driving mechanisms mainly refer to the paid use of land, the development of the real estate industry and the introduction of a large amount of investment. They are the direct stimulating factors of community renewal in Shenyang and the direct reasons for inducing the change in living space. The old Tiexi industrial zone has the largest number of factories and the most concentrated factory distribution in Shenyang. Taking advantage of the land rent range of 500–1200 yuan (RMB)/m² in the Economic Development Zone, the government has proposed the optimization of the land structure of the old Tiexi industrial zone and implemented a development strategy of ‘moving from east to west’. According to statistics, more than 100 relocated enterprises have vacated a total land area of 5.95 million m² and obtained 14 billion yuan in land income, which provides financial support for the renewal of old communities. As a large number of industrial enterprises move to the suburbs, larger and cheaper plots attract real estate developers. Tiexi District has become a hot spot in Shenyang real estate market. In addition, Tiexi new area is the state-level industrial development zone, whose government has independent land transfer rights. The land space after the demolition and reconstruction of a large number of factories has become the capital for the government to participate in the competition, which also attracts many foreign and local investors. At the same time, after the housing reform, residents’ choice of housing consumption has changed from the passive acceptance of housing distribution to the active choice of housing purchase, and the market has become the leading factor of housing price and spatial layout. After the vigorous development of the real estate market in Shenyang in the 1990s, the expansion speed of the land in the core area of the city centre obviously slowed.

Large-scale municipal construction and shantytown reconstruction became the main content of urban renewal in the old urban area. All of these have brought about the transformation and renewal of the original residential areas and promoted the continuous improvement of the living environment.

4.1.3 Condition constraint mechanisms

Condition constraint mechanisms include population influence, urban-rural action and traffic pull, which are the basic conditions for the change in living space. Tiexi District is the area with the fastest population growth rate in the five districts of Shenyang. The floating population in other districts is the main body of population growth. In the data of the sixth census in 2010, there are 191 800 registered residents in the migrant population in Tiexi District, accounting for 19.62% of the total population of the district and 62.02% of the total migrant population. The main reasons for this large migrant population are as follows. First, housing construction in Tiexi District started earlier, its scale is larger, and housing prices are lower, so many citizens and migrant populations are attracted to buy houses there, but their registered permanent residence remains in their original residence. For example, Xinggong Street is close to Heping District, the commercial centre of Shenyang, and Taiyuan Street, a commercial area, so it attracts many immigrants to purchase or rent houses there. For the typical residential areas of Qinggong Street, No. 12 Road, and Lingkong Street, the total population and total number of households increase significantly after the construction of new residential buildings, resulting in the high number of migrants and a larger proportion and density of the population. Second, with the acceleration of the urbanization process and the impact of the market economy environment, the number of non-agricultural, free choice of employment, cross-regional migrants has increased (Zhang et al., 2011). A total of 57.15% of the migrants are distributed in the marginal streets of Tiexi District, which is adjacent to Yuhong District and belongs to the urban-rural junction; it is the gathering place for farmers who have lost their land and go to cities for work and business. The influence of population and urbanization not only promotes the transformation process of the old district but also is the result of the renewal and transformation of residential space. In addition, the traffic pulling mechanism is also an important reason for the change in residential space. The traffic

pulling mechanism mainly refers to the influence of traffic conditions and commuting modes on the choice of living space. First, in the process of transportation reform in Shenyang, landscape roads such as Jianshe Road, Shenliao Road, Weigong Street, Baogong Street and Xinghua Street have been widened and rebuilt, and other streets and roads have also been renovated to varying degrees. The western part of Shenyang has been turned into the area with the smoothest traffic. Second, the government removes part of the land replacement income to improve municipal facilities and road traffic to improve the accessibility and convenience of traffic in Tiexi District. The newly built Shenyang Metro Line 1 has become the largest passenger transport corridor in the east-west direction of the city. It connects the two industrial zones in the east and west and the emerging economic and technological development zone and connects the three major commercial centres, namely, Tiexi Square, Taiyuan Street and Zhongjie Street, as well as Shenyang railway station, which is the railway transportation hub, and other regional stations. The opening of the Shenyang subway and the rapid increase in private cars in recent years have changed the traditional way of commuting with bicycles and buses, which has provided an opportunity for some people to move in space.

4.2 Residents' demand factors at the micro level

4.2.1 *The factors that residents choose to live in the community*

In the survey on residents' choice of residence, it is found that traffic conditions, economic factors, facility allocation and neighbourhood communication are the main factors considered. A total of 24.8% of residents consider the location, which is close to the city centre, or close to the place of work. Of the residents, 43.4% think that the housing price or rent is relatively cheap in the five inner districts of the city, and the living cost is relatively low. Twelve percent of the residents hold that Worker Village is located in the core area of the old city, and the facilities around the community are complete, so it is convenient to seek medical treatment, go to school and buy vegetables there. Of the residents, 19.5% are familiar with the surrounding environment of the residential area. Some of them are aborigines who live with their parents or have inherited the real estate to live independently. Others rely on the original social relations

and hope to live closer to their old friends and workmates.

'I work on Taiyuan Street. The houses there are too expensive. The houses here are cheap. It is not far from where I work.'

'This is the house that I have moved back to. I am doing business here. The rent in this community is cheap. The rent of a single room is approximately 800 yuan a month.'

'Our life here is very convenient. There is a 12-Road comprehensive market nearby. Not only people around but also those who live in Huanggu District come here to buy vegetables. There are many kinds of vegetables, and they are fresh and cheap.'

'I used to live here as a young man in a machine tool factory. My workmates also live here. We can play chess and poker and have fun with each other.'

4.2.2 *Spatial preference factors of residents' daily activities*

It is found that the spatial preferences of different types of activities, such as shopping, medical treatment, education and leisure, are not the same. Residents' choice of shops, hospitals, schools and leisure places depends on their preference for distance and other non-distance factors, such as goods, facilities and service quality. In the survey, 21% of the residents prefer shopping in large business districts, while 72% of the residents say that they can only shop near their residence, and some residents also choose online shopping with zero travel distance. In terms of medical treatment, considering the factors of service quality, 96% of the residents will ignore the distance factor and choose to go to the hospital, and very few residents go to the community health station. In terms of schooling, distance preference in basic education stage is obviously prominent, while distance preference in senior high school stage is significantly decreased. In terms of leisure and entertainment activities, 92% of residents' activities are still concentrated in residential areas, indicating that the dependence on distance is higher than the quality of facilities.

'We go shopping near home. There are small supermarkets and convenience stores everywhere. We can find everything we want to buy, and sometimes we buy it online.'

'When I am ill, I usually go to the hospital, which has many good doctors. I hardly ever go to community health stations.'

‘My child is now in primary school. The school is close to home, convenient to pick up and transport.’

‘My friends and I like to chat in the public square and sometimes exercise together in Labor Park nearby.’

4.2.3 Residents’ willingness regarding community renewal

For the majority of residents in Worker Village, community renewal is the objective, and relocation intention is the best evidence of this. Before the relocation and reconstruction of community housing, 98.2% of the residents chose to relocate to the original site instead of receiving monetary compensation in the survey of compensation methods. Residents think that the community needs to be updated in terms of housing quality, supporting facilities, landscape greening, property management, traffic convenience, public health, public security and safety. More than 70% of residents’ demands for renewal are focused on housing quality and supporting facilities. A total of 30.6% of residents think that the traffic convenience and public health environment need to be improved. Of residents, 32.8% have expectations for community landscape greening and property management. In addition, approximately 30% of residents are inclined to meet the needs of their daily lives, and they have higher expectations for improving the construction of community sports and living facilities.

‘Of course, we will choose the original location to move back to. Our old house is 42 m². According to the policy of compensation standards, we can obtain a new 70 m² house.’

‘Our building was built in 1954. The pattern and quality of the house have been out of order for a long time. It should have been demolished.’

‘There are not any supporting facilities and landscaping. There are several small trees in the community, which are also pulled on the clothesline. There are no property management services. The community collects health fees and is only responsible for garbage disposal.’

‘I hope there will be some public space for the elderly to walk and children to play. Originally, there was little public space that had been occupied. No one was responsible for the parking of vehicles in the community, and the road was seriously crowded.’

4.3 Summary of community renewal mechanisms

We construct the renewal mechanism model of Tiexi Worker Village from the perspective of the macro reno-

vation of the old industrial cities and the micro residents’ willingness to live. In many cases, the two different levels of mechanisms interweave, influence and interact with each other. The network mechanism mode is formed, which promotes the renewal and change in Worker Village (Fig. 5).

5 Conclusions

Old industrial cities are the focus area of urban renewal and reconstruction in China. The transformation of shantytowns here is related not only to urbanization and urban renewal but also to the disintegration of unit communities. In old industrial cities with a wide coverage of the unit system, shantytowns gradually degenerate into the main settlements of the poor and vulnerable groups by the comprehensive effect of factors such as the decline in urban industry, the general unemployment of residents, and the identity crisis. The transformation of shantytowns in old industrial cities is a typical disintegration of unit communities. In this process, the physical space renewal of the community is represented by the relocation of the old industrial factory, and the combined layout pattern of the factory and the residential area is broken. The renewal of community social space is reflected in the dissolution of the unit system and the profound changes in the unit degree, the characteristics of residents, the sense of identity, and the action ability of residents. The community renewal of shantytowns in old industrial cities is more difficult and complex than that in general cities. Based on qualitative interviews and questionnaire surveys, this paper conducts a systematic analysis of the community renewal of Tiexi Worker Village in Shenyang and draws the following conclusions.

(1) The renovation of Tiexi Worker Village in Shenyang is in its final stage. After the relocation of the old industrial factory area, the ecological environment, infrastructure, social services and living environment of the old industrial residential area have been constantly updated, and the physical space of the community has changed greatly. The community function has developed from a simple industrial life function to the integration of science, education, trade and life service areas, which is embodied in changes in land use structure, community spatial layout and community service facilities.

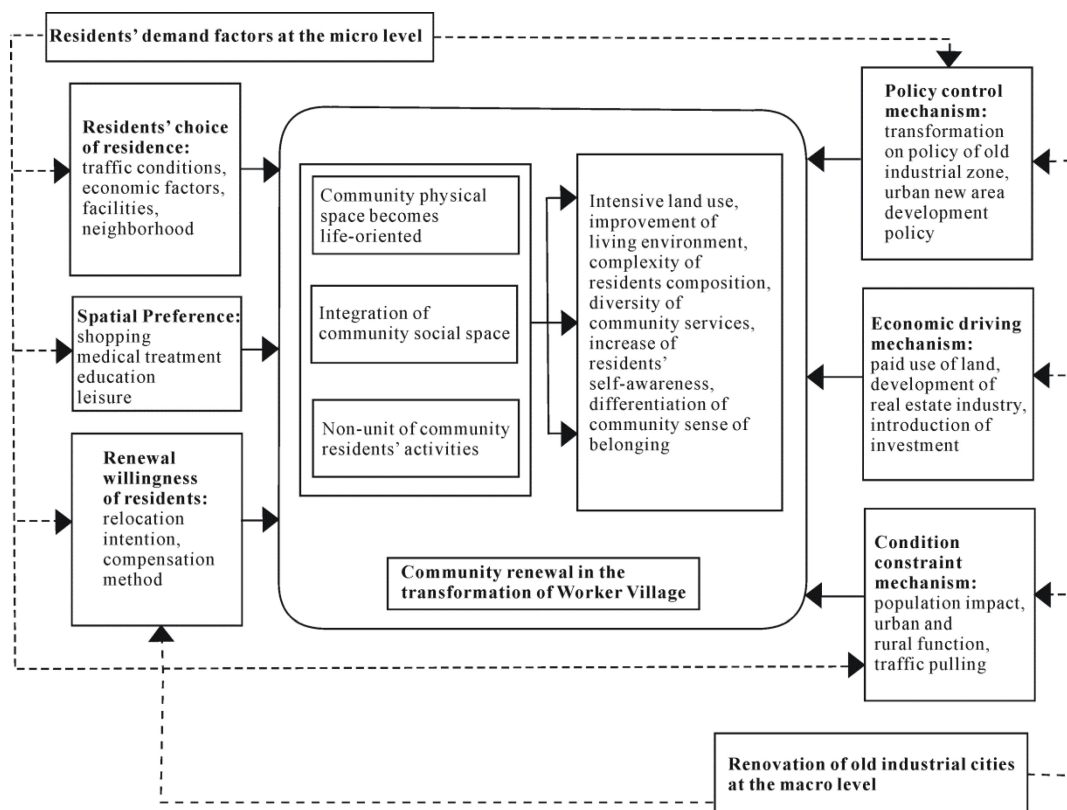


Fig. 5 The model of the renewal mechanisms of Tiexi Worker Village

(2) Before the reconstruction of Tiexi Worker Village, it was a unit community with large state-owned enterprises. Under the principle of ‘unit-run society’, it covered a large area and had relatively complete unit welfare and complete living service facilities. The residents were all employees of these enterprises. The homogeneity and identity of the employees were strong, and the social interaction was simple. After the reconstruction of Tiexi Worker Village, the composition of residents became complex, and the heterogeneity of residents increased, which is reflected in the differences in economic status, lifestyle, integration, community identity and other aspects. However, compared with general shantytown reconstruction, Worker Village has retained a considerable number of returning residents, who show conservative characteristics in neighbourhood communication and community belonging, and their collective action ability is weak. The social space of Worker Village has changed from a simple unit community to a mixed space of various types of residents.

(3) The renewal of Worker Village is dominated by macro factors such as policy regulation, economic driv-

ing, condition constraints, and micro factors such as residents’ choice of residence and willingness regarding community renewal. The transformation policy of the old industrial zone and the development policy of the new urban area are the fundamental and deep-seated reasons that determine the direction of the renewal and development of Worker Village. The paid use of land and the development of the real estate industry are the stimulating factors, which become the direct reasons for the spatial transformation. The change in the population in urban and rural areas and the movement of traffic are the basic conditions, while residents’ choice of residence and willingness regarding community renewal are the endogenous forces promoting community renewal. Thus, the physical space and social space of Worker Village have been renovated by the mechanism of the combination of top-down and bottom-up approaches.

(4) The community renewal of shantytowns is the core issue of the renewal and transformation of old industrial cities, which is directly related to the urban spatial layout, differentiation of residents, urban renewal, planning and governance. At present, under the influ-

ence of the concept of urban regeneration, various cities in China are carrying out the transformation of shantytowns and old residential areas and have put forward the concept of community renewal and urban micro renewal. As a typical representative of the poor community, the shantytown in the old industrial city studied in this paper has its particularity. Its renewal process is the process of weakening and dissolving the unit system in China, as well as the process of rapid urbanization with humans as the core in China. In this process, the internal heterogeneity and stratum differentiation of community residents are obvious, and the diversity and mobility of residents are enhanced. In addition, the community structure, community function and community management are strengthened. Inevitably, many new problems arise, which are also the epitome of urban renewal and reconstruction in China, reflecting the prominent problems associated with urban renewal. These outstanding problems are related to the reconstruction of community order and people's livelihood at the grassroots level in the city and will be solved at the macro level of the city and the micro level of community residents. In the solution process, we should pay attention to the integration of material space and social space, achieve the dual goals of environmental and community renewal, and realize urban regeneration.

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