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**Research on Informal Residential Space Under Viaducts in Shanghai: From the perspective of Socio-spatial Transformation<sup>i</sup>**

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**Abstract**

Since 2019, China has prioritised high-quality development and a ‘people-centric’ approach in urbanisation, emphasising ‘people-oriented’ planning. This shift has highlighted overlooked spaces and needs, such as the informal use of space under viaducts in inner cities due to their accessibility and unused areas. Formal spatial transformations are cautious, addressing safety, sanitation, and publicity issues.

This article examines informal living spaces under Shanghai's viaducts, focusing on activities and social networks. It aims to summarise the activity characteristics and spatial patterns of informal use, identify lacking functional needs in urban spaces, and provide suggestions for urban transformation based on socio-spatial insights. The study employs participatory observation, semi-structured interviews, and archival studies to gather information. Typological morphology analysis is used to understand spatial patterns, while actor-network theory analysis reveals the transformation of social networks.

**Key Words:** Informal Residential Spaces ; Spatial Equity ; Urban Facilities; Space under viaduct

**1. Introduction**

**1.1 Urbanization and Social Integration of Migrant Workers**

There is a close relationship between urbanization and migrant workers in megacities. Firstly, the process of urbanization has had a significant impact on the migration and settlement of migrant workers (Chen & Liu, 2016). With the advancement of urbanization, rural labor has become an important part of the urban labor market. Migrant workers have made great contributions to the economic development and social construction of cities. Secondly, megacities are more attractive to migrant workers (Mohabir et al., 2017). Megacities usually

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have more employment opportunities, richer resources, and better infrastructure, and these factors attract a large number of migrant workers to settle in cities (Mohabir et al., 2017).

In addition, urbanization has also brought social connections and interactions between migrant workers and urban residents. Such contacts and interactions have not only promoted the diversity and cultural exchanges of urban society, but also brought conflicts between different social groups. and fusion (Liu et al., 2012).

### **1.2 Migrant workers in Shanghai Have Difficulty in Settling Down and Social Isolation is Obvious**

The dynamic monitoring survey on the process of citizenization of migrant workers in Shanghai shows that during the "13th Five-Year Plan" period, the income and living standards of migrant workers in Shanghai continued to improve, but overall, the willingness of migrant workers to stay and settle in Shanghai has declined. The main obstacle is expensive housing and It is difficult to settle down. (Wang L.,2021)

At present, the housing conditions of migrant workers in Shanghai are still far below the average level of residential housing in Shanghai. The simple and changeable housing environment will cause social isolation between migrant workers and surrounding communities and aggravate social conflicts, which is not conducive to the stability and inclusiveness of the community. shape.

### **1.3 Questions of Research**

In summary, the link between urbanization and migrant workers in megacities is both economically interdependent and socially interdependent. While promoting urbanization and the development of megacities, attention should be paid to the protection of the rights and interests of migrant workers and the improvement of social welfare.

Therefore, this paper aims to analyze the living space and social network of migrant workers under the viaduct of Line 3 through social research methods such as space research and questionnaire interviews. Migrant workers' life line, analyzing the characteristics of social interaction between their living space and other spaces.

## **2. Analysis on Spatial Characteristics of Simple Migrant Workers' Housing Under the Viaduct of Shanghai Metro Line 3**

### **2.1 Area of Research**

The research area is situated under Shanghai Metro Elevated Line 3, a location that has been informally occupied for over six months, as illustrated in figure 1. The study is structured into two distinct levels of analysis.

The first level, Scope 1, delineates a spatial range extending 5 meters outward from the residential area of migrant workers, forming a boundary line. Within this scope, the study focuses primarily on the spatial activities and interactions of migrant workers. Detailed interviews and observations are conducted to understand the daily practices, spatial usage patterns, and immediate social interactions within this confined space. This level of analysis aims to capture the micro-level socio-spatial dynamics that define the everyday experiences of the migrant community.

The second level, Scope 2, encompasses a broader living circle with a radius corresponding to a 5-minute walk from the residential area. This scope is designed to analyze the characteristics of land use types and the spatial utilisation patterns by migrant workers within this extended range. By examining different spaces within this living circle, the study aims to summarise the spatial characteristics and life trajectories of migrant workers. It explores how they navigate and utilise various urban spaces, shedding light on the interplay between their living environment and broader urban contexts. Additionally, this scope analyses the social interactions between the migrant workers' living space and other urban spaces, providing insights into their integration and interaction within the urban fabric. This dual-level approach allows for a comprehensive understanding of both the immediate and extended socio-spatial dynamics affecting the migrant population.

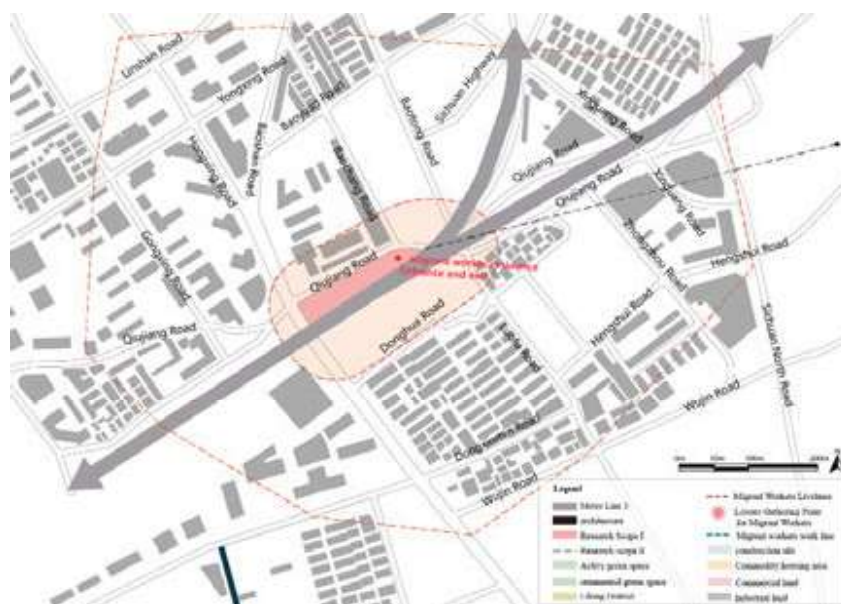


Figure1: The Research Scope *Source: Author's own drawing*

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## 2.2 Analysis of the Spatial Characteristics of Residential Points

The types of buildings adjacent to the study area predominantly consist of simple temporary structures and old-style lanes that are slated for demolition. Additionally, there are some small-scale commercial buildings, and the variety of space users is relatively limited.

Based on interviews and a thorough spatial investigation of the migrant workers' settlements, several key spatial characteristics have been summarised:

First, the physical and spatial environment of the migrant workers' residences is notably poor. The dormitories are situated directly beneath Shanghai Metro Line 3, which significantly disrupts the daily lives and rest of the migrant workers due to noise and vibrations from the trains above. This positioning highlights a critical issue of inadequate living conditions exacerbated by urban infrastructural development.

Second, on the south side of the residences and directly opposite the street intersection, there are two large-scale waste recycling and processing sites. These sites contribute to a degraded environmental quality, characterised by noise, pollution, and unsanitary conditions, further impacting the well-being of the migrant residents.

Third, the spatial location of these migrant worker settlements is isolated from the surrounding community. Interviews with waste recycling personnel reveal that this isolation stems from the surrounding old lanes undergoing redevelopment projects. The decision to locate the migrant workers' residences and temporary waste recycling operations under the viaduct was driven by considerations of spatial efficiency and the operational needs of construction projects. However, this arrangement neglects the living experience and social integration of the migrant workers, underscoring a significant disconnect between urban planning objectives and the socio-spatial needs of vulnerable populations.

This isolation not only physically segregates the migrant workers from the broader community but also limits their access to essential services and social networks, contributing to their social marginalisation. The study highlights the need for more inclusive urban planning that prioritises the well-being and integration of all residents, particularly those in precarious living conditions.



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Figure2: The living environment of migrant workers *Source: Photographed by the author*

### **2.3 Analysis on the Law of Migrant Workers' Space Utilization**

After conducting extensive research, it was observed that migrant workers regularly navigate the surrounding urban space, engaging in activities primarily related to dining, leisure, entertainment, and work, as illustrated in figure 3. By superimposing the activity patterns and spaces frequented by migrant workers with the existing land use, it was discovered that their actual utilisation of space is concentrated in construction sites and small-scale businesses located at the ground level of nearby residential areas. Notably, the large commercial complex situated within a five-minute walk to the east of their residential area showed no evidence of activity by migrant workers, as neither observations nor interviews indicated any usage of this space. This suggests a pronounced preference among migrant workers for patronising smaller, local businesses rather than larger commercial establishments.

In summary, the management of these settlements reflects a perception of them as transient spaces, with spatial allocators or managers not recognising migrant workers as a long-term, integrated component of urban society. Consequently, the physical and spatial environment of these migrant worker settlements fails to foster their integration into the broader urban social network. Instead, the current spatial configuration exacerbates the isolation of migrant workers from other urban communities.

This isolation is further reinforced by the lack of infrastructural and social amenities that facilitate interaction and integration. The spatial segregation underscores the broader socio-spatial dynamics in urban sociology, where marginalised groups are often confined to peripheral and inadequately serviced areas. The findings indicate that without intentional urban planning efforts to create inclusive spaces that encourage social cohesion, migrant workers will remain segregated, perpetuating a cycle of exclusion from the socio-economic benefits of urban life. This scenario calls for a reevaluation of urban policies to incorporate inclusive practices that address the unique needs of migrant workers, ensuring their seamless integration into the urban fabric.

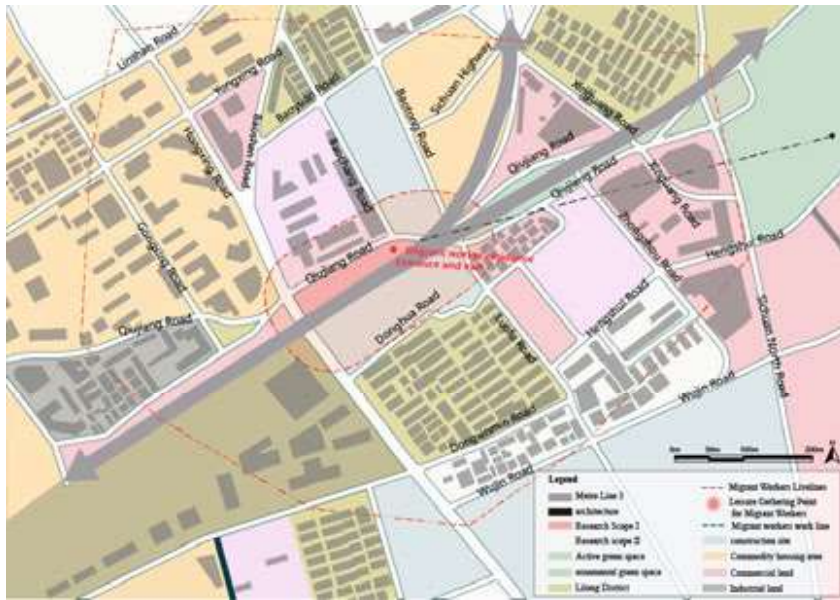
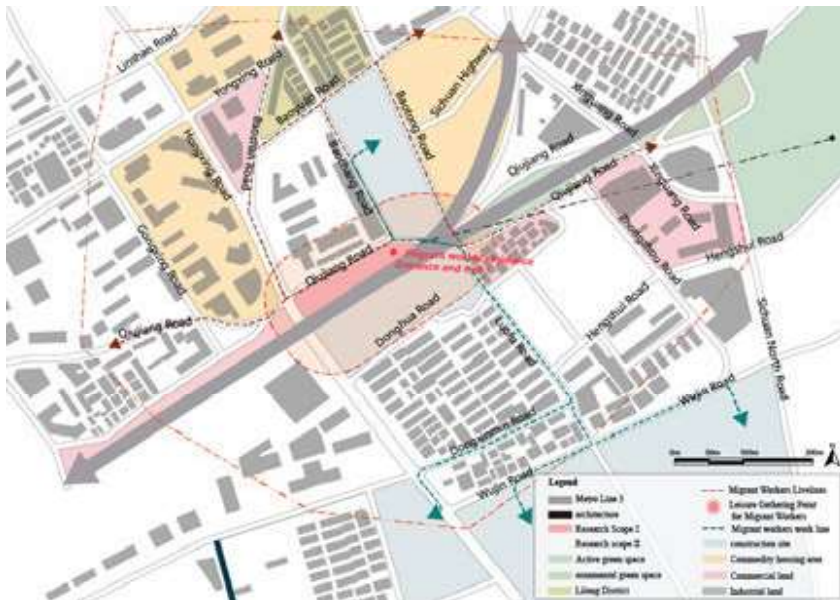


Figure3: Analysis of land use around migrant workers' settlements Source: Author's own drawing



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*Figure4: Analysis of land use around migrant workers' settlements Source: Author's own drawing*

### **3.Characteristics of the Social Network of Migrant Workers' Settlements**

#### **3.1 The Inner Social Structure of Migrant Workers**

The internal social structure of the migrant workers has developed into a tightly-knit circle with the contractor at its core. According to interviews, the majority of the migrant workers residing in this area originate from Anhui Province and have been uniformly recruited by the construction team. The contractor and the workers share a common background, being acquaintances from the same village, which has fostered a stable and cooperative relationship. This cohesive social network, characterised by strong internal bonds, significantly contributes to their weak connections with surrounding communities and the broader urban social networks (Lu Wenrong, 2019).

The investigation also revealed the presence of occasional temporary migrant workers who reside in green parks outside the designated temporary residences. These individuals are unable to secure long-term positions because they are excluded by the entrenched social network of acquaintances within the migrant worker community. Consequently, their integration into the urban social fabric is even more tenuous, further highlighting the barriers to social cohesion and integration faced by these temporary migrants.

This phenomenon underscores a critical issue in urban sociology: the role of strong internal networks in perpetuating social exclusion. While these networks provide essential support and stability within the migrant community, they simultaneously act as barriers to broader social integration. The closed nature of these networks limits the opportunities for new migrants to connect with established urban residents and access the resources available in the wider urban environment.



*Figure5:* Temporary migrant workers outside the migrant workers' residences *Source:*  
*Photographed by the author*

### **3.2 Group Interaction Between Migrant Workers And Surrounding Communities Under the Viaduct**

Firstly, a service-oriented group of migrant workers congregates around the periphery of their residential areas. As depicted in figure 6, retail vendors position themselves at the entrances and exits of these areas, selling daily necessities to the migrant workers. While the prices of these goods are relatively low, the variety is haphazard and there is a notable lack of quality assurance. This phenomenon highlights a significant issue: the inadequacy and inconvenience of formal business service facilities for migrant workers.

In addition to retail vendors, waste recyclers also play a prominent role in this informal economy. These recyclers collect second-hand home appliances from nearby communities slated for demolition. They refurbish and repair these items before renting or selling them, often directly targeting the migrant worker population. During the day, these recyclers choose to remain outside the residential areas of migrant workers. This choice of location is strategic for several reasons. Firstly, it places them in close proximity to waste recycling stations, facilitating their operations. Secondly, migrant workers constitute a critical consumer base for such refurbished goods, making this arrangement mutually beneficial for both the recyclers and the workers.

This phenomenon can be understood within the framework of urban sociology, where informal economies often emerge in response to gaps in formal service provision. The clustering of retail vendors and waste recyclers around migrant worker residences illustrates the adaptive strategies employed by both service providers and consumers in marginalised urban spaces. These

informal activities not only cater to the immediate needs of migrant workers but also reveal the underlying socio-economic dynamics that shape their everyday lives.

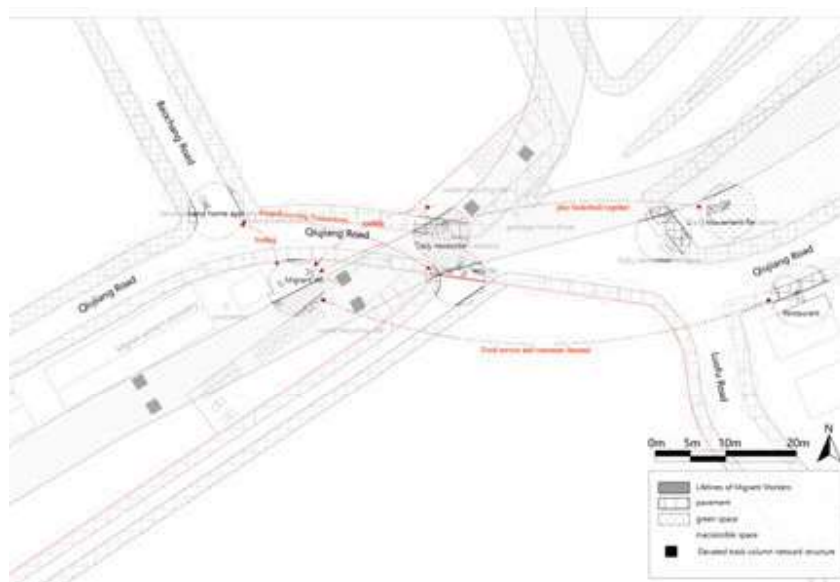


Figure6: Analysis of the social space network of migrant workers' settlements Source: Author's own drawing

Secondly, the interaction between migrant workers and the surrounding community residents is relatively limited. Despite the physical proximity of these groups, meaningful social integration remains sparse.

Besides the retail vendors and waste recyclers mentioned earlier, there are also fast food restaurant owners who set up in the vicinity to cater specifically to the dietary needs of the migrant workers. These eateries are a significant feature of the informal economy, providing affordable meals that fit the budgets and schedules of the workers. Additionally, residents from nearby communities frequently visit the area, particularly to utilise the local parks for recreational activities.

Interviews conducted with both migrant workers and local residents reveal a minimal level of social interaction between the two groups. While some interaction does occur, such as migrant workers playing basketball with local residents, these engagements tend to be superficial and do not extend into deeper social relationships or networks. The interaction remains largely limited to these casual encounters, with little evidence of further social integration or the development of meaningful connections.

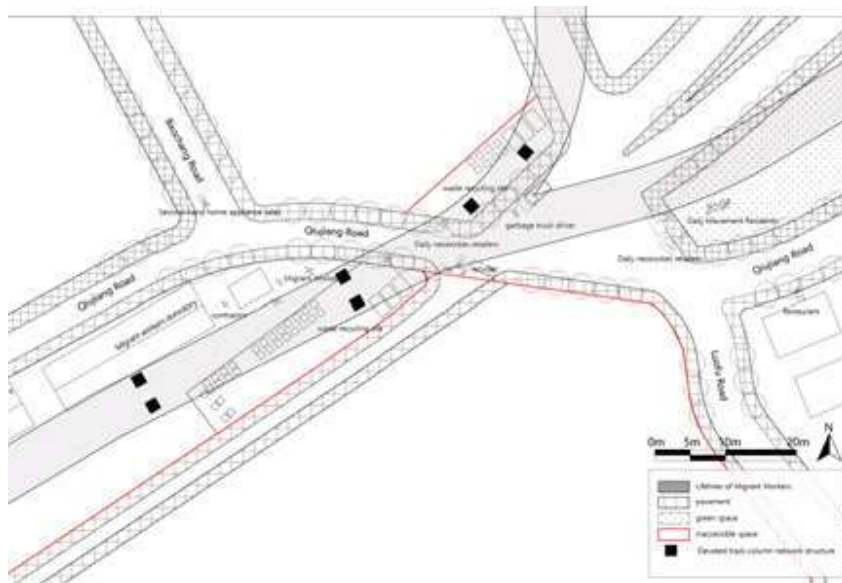


Figure7: Analysis of crowd activities around migrant workers' residences *Source: Author's own drawing*

The spatial distribution of retail vendors and waste recyclers around migrant worker settlements reflects broader socio-spatial dynamics. These service providers strategically position themselves in areas with high demand and minimal competition from formal businesses. This spatial arrangement highlights the intersection of economic necessity and urban planning.

In conclusion, the service-oriented activities around migrant worker residences in Shanghai reveal significant insights into the socio-economic and spatial dynamics of urban marginalisation. The clustering of retail vendors and waste recyclers around these areas highlights the inadequacies of formal service provision and the adaptive strategies employed by both service providers and migrant workers. Addressing these issues requires a comprehensive approach that includes improving formal service facilities, integrating informal economies into formal systems, and fostering social cohesion through inclusive urban policies. By doing so, cities can create more equitable and supportive environments for all residents, including migrant workers.

Meanwhile, Public spaces, such as parks, play a crucial role in facilitating social interaction. The fact that some level of interaction occurs during recreational activities, like basketball games, suggests that these spaces hold potential for fostering greater social integration. Enhancing the inclusivity and accessibility of public spaces could encourage more frequent and meaningful interactions between migrant workers and local residents. Urban planning initiatives that promote mixed-use spaces and community-building activities could be

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particularly effective in this regard.

#### **4. Conclusion and Discussion**

##### **4.1 Summary of the Living Space and Social Integration Characteristics of Migrant Workers in Big Cities:**

###### 4.1.1 Limited Spatial Activities:

The research indicates that migrant workers have a restricted range of spatial activities. This limitation stems from the significant proportion of their daily schedule dedicated to work and rest, leaving minimal time and space for leisure and entertainment. Surrounding public service and recreational facilities are predominantly fast food outlets and high-end malls, lacking diverse options catering to varying preferences.

###### 4.1.2 Network Relationships and Social Structure:

Migrant workers tend to establish relatively stable network relationships within their immediate social environment. However, the structure of these networks is often straightforward. Notably, proximity to green spaces like parks and engagement in activities such as basketball contribute positively to their social integration. Effective public space design can enhance these networks, facilitating greater social inclusion.

##### **4.2 Strategies for Enhancing Migrant Workers' Living Environment and Social Communication in Urban Areas:**

###### 4.2.1 Improving Housing Selection and Living Conditions:

Due to the limited possibility of improving the living quality of migrant workers in the short term, it is possible to consider the possibility of supplementing community functions through external spaces around some residential sites when planning the residential layout of migrant workers.

As far as possible, ensure that the site is located in a residential area or a living area, and some micro-green space adjacent to it can be considered to provide public activity space for migrant workers. By optimizing the space points, more optional spaces and activities are provided for the lives of migrant workers, thereby promoting the integration of migrant workers into the local social network.

###### 4.2.2 Establishing a Five-Minute Living Circle Evaluation System:

The simple houses that farmers live under viaducts usually lack public service facilities and social support networks. In the construction of the five-minute living circle, migrant workers should be considered in the allocation of public service facilities as urban permanent residents.

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#### 4.2.3 Utilizing Micro Spaces for Community Enhancement:

Due to limited urban construction resources, it is not easy to provide suitable housing options for all migrant workers at this stage, such as collective dormitories, public rental housing or affordable low-rent housing. However, based on the current space environment, multi-functional embedded reconstruction is carried out to realize the basic public service functions of the residential area, and to improve the community functions of the simple housing. For example, when providing basic

Measures such as drug supply, placement of community furniture, and creation of a simple living room in the community.

#### 4.2.4 Regular social assistance and public services:

Provide free or low-cost medical services, including regular health checks. Provide educational opportunities, including compulsory education, vocational training and skills upgrading courses, to improve the educational level and employment opportunities of farmers. Organize social workers and volunteer teams to provide farmers with social services such as consultation, legal assistance and psychological support.

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