Rural-to-urban resettlement and resettled villagers' post-resettlement adaptation in Hangzhou, China

by

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Author’s Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Statement of Contributions

This dissertation follows an article-based format. Chen Yang, was the sole author of Chapters 1 and 5, and the lead author of Chapters 2, 3 and 4. All three articles have been published. As the first and corresponding author for all three articles, my contributions include conceptualization, methodology, formal analysis, investigation, writing – original draft, writing – review & edition, and visualization. My coauthors provided guidance during each step of the research and provided feedback on draft manuscripts.

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Abstract

In recent years, rural-to-urban resettlement as a specific form of urbanization and its long-lasting impact on landless villagers have garnered increasing scholarly and policy attention in China. Urbanization through resettlement has thus become a potent tool for the Chinese government to embrace the new-type urbanization, which highlights the integrated urban-rural development and the citizenization of the rural population in urban areas. During this process, resettled villagers were physically relocated into concentrated resettlement communities and underwent an arduous adaptation process to the host city. This dissertation adopts an integrated conceptual framework to analyze decade-long resettlement practices in Hangzhou, China. Through an explanatory sequential mixed methods approach design, this dissertation sheds light on how urbanization through resettlement unfolds and how resettled villagers adapt to urban society. More specifically, it explores the following questions. What are the spatial characteristics of resettlement communities regarding material deprivation? How is space socially produced in resettlement communities? How has China's property rights system influenced resettlement practices and resettled villagers' post-resettlement adaptation?

This dissertation follows the article-based format, and the three articles together offer a step-wise approach to untangling the complexities of rural-to-urban resettlement in China. The first article investigates what dimension of resettlement communities by focusing on their spatial characteristics. It invokes the concept of deprivation and aims to establish indices of multiple deprivations (IMDs) for resettlement communities. In doing so, the article uses accessibility as a proxy and integrates the space syntax approach with multi-criteria decision analysis to construct the IMDs of concentrated resettlement communities in Hangzhou, China. The utilized data consists of street networks obtained from OpenStreetMap, Point of Interest (POI) gathered through Amap API, and interviews conducted within the local communities. The findings suggest that material deprivation may not be the primary rationale for residential segregation of resettlement communities in urban areas. In addition, the accessibility to different services reflects diverse material deprivation patterns of resettlement communities. Moreover, the perceived deprivation of various stakeholders, such as resettled villagers, planners, and local government officials, may lead to different results of the IMDs. The diverse criteria or domains of deprivation contribute differently to the deprivation, which requires a tailored treatment strategy when constructing IMDs, such as the sensitivity analysis used in this research. It is

recommended to incorporate perceived deprivation measurement as the essential component of pre-resettlement assessment.

The second article further explores how space is produced in resettlement communities. The production of concentrated resettlement communities (CRCs) to accommodate resettled villagers and facilitate their post-resettlement adaptation creates a unique urban phenomenon in China. However, existing research has insufficiently unpacked the evolution of the production process. Building on the theory of space production, this article proposes a dynamic spatial-temporal conceptual framework to examine the process of space production. Drawing on interviews with residents, local planners, policy makers, and academics, as well as large sample questionnaire surveys, the article offers an empirical lens on how CRCs have evolved and how landless farmers have adapted to the host city. It first finds that CRCs in Hangzhou have three typologies in terms of spatial layout and built form. Secondly, resettled villagers in early CRCs are confronted with economic challenges but maintain well social relations. Their shared collectivism is conducive to their spatial adaptation. In recent CRCs, strict planning and community management have further limited resettled villagers' spontaneous attempts to reshape space to support their adaptation.

The third article delves into why it is challenging to achieve inclusive rural-to-urban resettlement by focusing on the property rights regime in China. While the Chinese government intends to use resettlement to address the ambiguous property rights in rural areas, resettlement projects may deviate from the presupposed ideal path of achieving equitable property rights through property rights rearrangements. This article aims to unpack the complexity of property rights embedded in rural-to-urban resettlement based on the empirical case of Hangzhou. Based on documentary analysis, field observation, in-depth interviews, and questionnaire surveys, the article argues that the ambiguous property rights system of rural land cannot be fully addressed through rural-to-urban transition, and the coexistence of private, collective, formal and informal property rights systems is inevitable in urban areas without targeted policy remedies. The findings identify some main obstacles to the ideal transition of property rights systems. First, the resettled villagers are excluded from market participation by inadequate compensation through planning mechanisms. Second, resettlement communities suffer from the remaining rurality that challenges the enforcement of formal institutions and the governance of communal resources in the urban system. Third, the collective-retained land is an innovative but compromised institution devised by the local government to achieve a fair property

rights rearrangement through resettlement, but its effectiveness is weakened by the politics at the village level.

In summary, this dissertation provides a detailed reading of rural-to-urban resettlement practices and a nuanced understanding of resettled villagers' post-resettlement adaptation in contemporary China. More importantly, the findings can have important policy implications for sustainable urban-rural development in China regarding offering better locational choices for resettlement communities, accommodating the spatial demands of resettled villagers, and achieving equitable property rights for the affected.

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In 2019, when I was about to complete my Masters' degree at the University of Waterloo, my supervisor, Dr. Joe Qian, reached out and asked whether I was interested in doing a PhD with him. I was a bit hesitant as the research topic of resettlement is relatively new to me, and I was not prepared for the "lonely and arduous" journey as depicted by many friends and insiders of mine. In retrospect, I thank my own courage and inner desire due to curiosity at that specific turning point in my life, which shapes me into who I am. Of course, I am indebted to Dr. Joe Qian, who opened the door for me to climb the ladder of knowledge and nudged me upward whenever I was shaken inside and decided to give up. Most importantly, I would like to thank him for serving as a role-model and showing me how to be a professional and productive researcher. I will carry this with me for my future career.

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Dedication

To my grandpa, in loving memory.

To my daughter, a blessing from up above.

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Chapter 1
Introduction

1.1 Research Background

In 2020, Chinese president Xi Jinping announced to the public that the Chinese nation had achieved a "complete victory" against poverty. In the same year, China's urbanization rate reached around 64 percent, which indicates around 9 billion people were living in urban areas. Although the statistical triumph of urbanization has been under criticism (Brenner & Schmid, 2014), the fact that cities are housing more population signifies the unbalanced development between rural and urban areas, and a fully urbanized society is in the making (K. W. Chan, 2012). The trending idea of planetary urbanization has conditioned a development trajectory solely based on urbanization, where the rural realm is to be internalized in the urbanization process (Brenner & Schmid, 2011, 2015a). Recent debates against this idea highlight the geography of the global south, where "geographies of ruralization" remain an impetus for development (Gillen et al., 2022b). In addition, while planetary urbanization focuses on a development path harnessed by capitalist logic, urban-rural relations in the Global South, especially China, have been strongly influenced and remoulded by the state's planning intervention. This outside knowledge makes China a laboratory for fermenting new thoughts.

China remains a developing economy, and its rural realm remains a critical issue for its sustainable development. Although China's exceptionalism, regarding political clout (Callahan, 2012), economic development miracle (B. Ho, 2014), and unprecedented urbanization (Pow, 2011), has been well documented in the existing literature, China's sheer magnitude of the rural population, low GDP per capita, and unequal distribution of wealth characterize China's uneven geography of development (Lim, 2014; Ye et al., 2017). China's current development, especially after President Xi took power, is featured by two national strategies of new-type urbanization and rural revitalization (M. Chen et al., 2016, 2019; N. Chen & Kong, 2022; Y. S. Liu, 2019). Against this backdrop, urban-rural integration and national spatial planning have been adopted to coordinate development in rural and urban areas (K. Chen et al., 2020a; Y. Li & Hu, 2015). It is worth mentioning that a new round of reform to the registered planner system was conducted in 2021. After the reform, the title of registered planner transformed from "registered urban-rural planner" (*zhuce chengxiang guihuashi*) to "registered planner of the national territory and spatial planning" (*guotu kongjian guihuashi*). This transformation suggests a transition in national planning policies from form and land use-based to people and resource-oriented.

Resettlement has become a potent planning tool for the Chinese state to exercise its spatial strategies (Lo et al., 2016; Z. Qian & Xue, 2017; Rogers et al., 2020; C. Yang & Qian, 2021). In the existing literature, resettlement can take various forms, such as development-induced resettlement and displacement (Neef & Singer, 2015; Vanclay, 2017; H. Xu et al., 2022), climate change-induced resettlement (Arnall, 2019; Sherbinin et al., 2011; Wilmsen & Webber, 2015b), and urban redevelopment resettlement (H. H. Chan et al., 2019; F. Wu & He, 2005). While all these forms have been investigated in-depth, this dissertation intends to bring attention to an important but not fully conceptualized form of resettlement – urbanization through resettlement. This idea derives from my observations of the ongoing great socio-spatial transformations in China (Chung, 2013; Hsing, 2010a; Wilmsen & Webber, 2015a) and my readings on existing literature on resettlement, planetary urbanization, deprivation, space production, the right to the city, property rights, to name a few important ones. The attempt to link urbanization with resettlement is not new. Professor Michael Cernea, the creator of the World Bank's first involuntary resettlement policy, acutely pointed out that China's urbanization approach to resettlement opened "a new chapter in the history of resettlement programs managed by the State" (Cernea, 2016, pp. vii–liii). However, Cernea did not lay out a conceptual framework for this "new chapter," nor did he connect this approach with the ongoing theoretical debates on urbanization and ruralization. I see this gap as an opportunity to further develop a conceptual framework to unpack the massive resettlement practices happening in China as well as resettled villagers' post-resettlement adaptation process. More importantly, this framework can have policy relevance to resettlement projects implemented and to be implemented in the Chinese and the Global South, which will be further discussed in the conclusion chapter after presenting a full picture of Chinese resettlement knowledge.

Another important socio-economic context worth mentioning is that Chinese society is "leaving the soil". In his recent book, *Creating Chinese Urbanism*, Fulong Wu (2022) summarized his observations on contemporary Chinese urban revolution and governance changes through an eye-catching and stimulating formulation of "leaving the soil." This formulation is rooted in Fei Xiaotong's work (1992a), *From the Soil*, -- a renowned Chinese sociologist -- which conceptualizes Chinese society as "earth-bounded" (*xiangtu zhongguo*). In the times of Fei Xiaotong's seminal work, China was a predominantly rural society, which lasted until 1978 when China opened up to the market mechanism, which introduced a rapidly climbing urbanization rate at around 1% annually. In reference to Fei's observation of traditional Chinese society, Wu believes that the current Chinese

society is transitioning into one shaped by the blend forces of state and market mechanism, which he termed as “state entrepreneurialism” (F. Wu, 2017, 2020). The transition from a rural society into an urban society echoes the planetary urbanization condition of world development but also brings about serious consequences for sustainable urban development by introducing a large rural “floating population”(J. Luo et al., 2018; Y. Zhu, 2007) into urban areas. While rural migrants have garnered enormous attention (X. Chen et al., 2011; Y. Cheng et al., 2019; Y. Song et al., 2008; L. Wu & Zhang, 2018), a new group of the rural population has joined the urban society through state-led resettlement projects. During the 13th Five-Year Plan period from 2016 to 2020, 9.6 million people were resettled for the purpose of poverty alleviation, among which 52% were resettled in urban areas (towns and cities). This “uprooted” (Johnson, 2013) or “upstairs” (J. Li et al., 2016) rural population, along with their settlements in urban areas, also known as concentrated resettlement communities, contribute to the remaking of Chinese urbanism. The concentrated resettlement community is often initiated by the local government after land expropriation and developed by real estate developers in collaboration with the government. The community consists of gated mid-rise and high-rise apartment buildings, designed and planned by those in power, and built within a certain financial and time frame. Resettlement communities thus serve as an important medium for effectively studying how resettled people are affected by urbanization.

1.2 Literature review

This section intends to provide an overview of resettlement literature by synthesizing existing literature under three key themes, resettlement evolution in China, resettlement with Chinese characteristics, and inclusive resettlement. The first theme introduces the genealogy of resettlement studies, with a brief overview of the global context and a more detailed focus on the Chinese perspective. The second theme highlights the historical, political-economic, and institutional particularities of China, and thus contextualizes resettlement studies in China through a relational lens of state-market relations. The third theme interrogates the long-standing issues of post-resettlement adaptation and extracts key dimensions of inclusiveness from the literature. Overall, the review enables a broad picture of resettlement studies with a focused lens on China.

1.2.1 Resettlement in China

Resettlement studies are often seen as a sub-field of development studies. Under the Sustainable Development Goals (SDGs) framework, resettlement is a potential instrument for reducing poverty

(Goal No.1), eliminating hunger (Goal No.2), promoting economic development (Goal No.8), and building sustainable communities (Goal No. 11) (H. Xu et al., 2022). Early studies on resettlement were initiated by anthropologists in the mid-1950s and early 1960s, focusing on dam-induced resettlement in African countries (Terminski, 2014). Later, the intellectual battleground moved to Asia because of the significant population growth and rapid urbanization process. Before 1990, international financial institutions such as the World Bank and the Asian Development Bank funded many infrastructural "mega-projects," like dams, electricity grids, and roads/superhighways, without serious social, economic and(or) ecological considerations (Zaman et al., 2021). The development-centric ideology has led to a burgeoning body of literature on development-induced resettlement and displacement (DIRD). In 1990, social and resettlement measures were formalized and incorporated into official documents of the World Bank as Operational Directive 4.30 involuntary resettlement. Since then, involuntary resettlement policies and social assessments have been followed and adopted by international financial institutions as mandates for development projects, which also promoted local governments' creation of relevant policies (Shi, Yu, et al., 2021a). Yet, resettlement practices and policy efforts still depart from the ideal future envisaged by development-centric resettlement projects, especially regarding the affected people's post-resettlement adaptation.

Resettlement in China has undergone three primary phases. In the first phase (1949-1982), the predominant model was resettlement for "public interests" that served industrialization and political mobilization. The "public interests" is translated into the "for the necessity of urban construction and industrial development."[1] Meanwhile, the Central Government Administration of China promogulated Railway Land Retention Scheme in 1950, which also dealt with land acquisition under conditions of railway construction. According to the Scheme, farmland can be "purchased", "acquired", or "expropriated" by the government for the service of infrastructure construction. During this phase, resettlement was a byproduct of land expropriation that was intended for land allocation for constructing new sites for state enterprises, especially heavy industries, railway transportation facilities, and water projects. Resettlement policies were diverse as the general principle is to hold the entities who expropriate land accountable for "properly resettling" the affected population, mostly villagers. Moreover, the Cultural Revolution also halts the legislative progress about resettlement.

[1] City's Rural Land Reform Ordinance, 1950

In the second phase (1982-2014), resettlement in China followed the development-forced or resettlement for development model (Wilmsen & Webber, 2015c), which is marked by a developmental state, mega-infrastructure construction (especially dams), international funding, and a gradually improving system of institutional policies on economic and social impact assessment of resettlement (Shi, Yu, et al., 2021b). The amendment to the Constitution of the PRC in 1982 marked the establishment of China's dual land structure where urban land belongs to the state, and rural land is collectively owned. Afterwards, a series of regulations were promulgated to institutionalize land requisition with some specific articles on related resettlement issues, particularly on compensation. Such regulations include Regulations on the Requisition of Land by the State for Construction (1982), Regulation on land use for housing construction in villages and townships (1982), and the Land Administration Law of the PRC (1986). Another crucial contributing factor in this phase is the embrace of market mechanisms since China's open-up reform in 1978. Specifically, China joined the World Bank in 1980, which opened China's way to learn from the Bank's development policies and experiences. From Shuikou Dam to the Three Gorges Dam, dam-induced resettlement dominated resettlement literature in China (Shi, Jiang, et al., 2021; Yan et al., 2018). The Three Gorges Dam project is perhaps the most high-profile project in the resettlement literature and has attracted wide scholarly attention until very recently (D. Feng & Zhu, 2022; Heming et al., 2001; J. Jing, 1997; Wilmsen et al., 2011; Wilmsen, 2016, 2018). Most studies, if not all, question the effectiveness of resettlement projects to bring development for the resettled people in particular, and urge the Chinese government to adopt tailored resettlement policies to address the above concerns. As Wilmsen (2016, p. 43) asked, "if resettlement is conceptualized and planned as a development opportunity, can the livelihoods of the resettlers improve over time?" The long-term socio-economic impacts of resettlement projects on resettled people are thus central to the success of resettlement for development models in China.

The third stage (2014 to present) is loosely defined using the timeline established in the National New-type Urbanization Plan (2014-2020/2021-2035), which prioritizes the transformation of the population from rural to urban and the citizenizaiton (*shimin hua*) of the transformed population. After President Xi took power, rural development or integrated urban-rural development has been highlighted in China's national planning strategies. Rural revitalization and poverty-alleviation resettlement has become the major force of development in China's rural areas, making rural more like rural through planning intervention or completely relocating the rural population and

reconsolidating rural lands (N. Chen & Kong, 2022). From 2015 to 2020, the ex-situ poverty alleviation resettlement cost around 600 billion RMB (86 billion USD) and relocated 16 million rural villagers (Rogers et al., 2020). This massive movement of the rural population into urban areas is significantly different from our traditional knowledge about rural migrants in China, which has yet to receive the attention it deserves. Meanwhile, local governments were proactively engaged in urban expansion by removing peripheral villages and establishing resettlement communities in cities. Specifically, administrative boundary adjustments and administrative reclassification were deployed as key mechanisms for achieving urbanization (J. Chen et al., 2021; Y. Liu et al., 2014; J. Zhang & Wu, 2006). Notably, such state-led resettlement practices represent a new development model adopted by the Chinese government, which is beyond the development-induced resettlement model. Notably, such state-led resettlement practices represent a new development model adopted by the Chinese government, which is beyond the development-induced resettlement model. On January 28th, 2023, the National Development and Reform Commission along with 19 other central departments in China, issued guidance that specified a future period when new-type urbanization would be achieved mainly through ex-situ resettlement [2]. In addition to resettlement *per se*, the resettled villagers' post-resettlement adaptation and life development will likely incur long-term issues to China's sustainable development.

1.2.2 Resettlement with Chinese characteristics

The idea of resettlement with Chinese characteristics highlights key themes, including the distinctive political-economic context and the three types of mismatch associated with resettlement. Resettlement in China manifests in various forms: the development-induced displacement and resettlement (especially the dam projects), the resettlement as development (poverty-alleviation projects), intra-urban resettlement due to redevelopment projects, and rural-to-urban resettlement of land-lost farmers in suburban areas (C. Yang & Qian, 2021). This dissertation focuses on resettlement projects that propel urbanization in China by consuming the rural to fuel the urban. Gu and Wu (2010, pp. 1–2) define urbanization in China as "a complex and multifaceted process involving population migration from rural to urban areas, rural and urban land conversions, spatial reconfiguration of settlements, and changing governance." This definition implies the rural-urban divide in China, which has its roots in China's long history as an agricultural economy and socialist institutional legacy that

[2] Xinhua News Agency, retrieved from http://www.gov.cn/xinwen/2023-01/28/content_5738974.htm

favors urban-biased development (S. Wang et al., 2019). In history, the Chinese state has intervened the unfolding of urbanization through strong planning mechanisms, including the People's Commune movement in China (Salaff, 1967), the down to the countryside movement (Z. Qian, 2014), the hukou regime (F. Cai, 2011), the small town enterprises (Ma & Fan, 1994), and the rural revitalization (Y. S. Liu, 2019). These counter-urbanization measures reflect China's efforts to balance development in urban and rural areas due to political imperatives and socialist ideology to create an egalitarian society and avoid urban-rural antagonism (Mili, 2019). Since 2002, when the term "coordinated urban-rural development" was formalized, China has experimented with national strategies for urban-rural development. In China's subsequent Five-Year Plans (11th, 12th, and 13th), urban-rural integration has become the major policy rhetoric. In the 19th Party Congress report (2017), rural revitalization was first proposed and later became the guiding principle for integrated urban-rural development. For the Chinese government, urban-rural integration envisages a future where urban-rural development is planned with resources channelled to targeted areas by planning interventions to make urban areas more urban and rural areas more rural (Wilczak, 2017). Against this backdrop, rural-to-urban resettlement has been adopted by the Chinese government as a potent tool in restructuring urban-rural relations.

Resettlement practices are heavily influenced by the political-economic context of local countries. The state-led resettlement in China is characterized by socialist neoliberalism, landed finance and ambiguous property rights. First, socialist neoliberalism conditioned an intricate relationship between the planned and market economy in China. Following the "authoritarian turn" of neoliberalism (Peck & Theodore, 2019), neoliberalism in China involves "more unilateral actions of authoritarian states than democratic consent to impose neoliberal practices" (Su & Qian, 2020, p. 3). Neoliberalism notably contributes to China's post-reform economic boom, which favors pro-growth and market-friendly state-market relations (Chu & So, 2010; F. Wu, 2008). Prior research has made a consensus that neoliberalism in China has strong "Chinese Characteristics" (Harvey, 2005; Peck & Zhang, 2013). That is, the presupposed retreating state is, in fact, playing a more proactive role in leveraging market mechanisms in planning. Neoliberal planning is thus featured by rescaling rather than retreating, which aims for economic development based on the market and consolidating state power (F. Wu, 2015). Against this backdrop, rural-to-urban resettlement is promoted by the Chinese state for both economic and political purposes. While the state controls land resources, China's strategy of land expropriation differs from India's "eminent domination" and socialist Vietnam's pro-market

approaches (Parwez & Sen, 2016; Phuc et al., 2014). Although private developers may participate in resettlement processes by collaborating with local governments[3], Chinese governments impose many regulatory constraints on resettlement decisions and land conversion. In this sense, rural-to-urban resettlement not only serves the neoliberal principle that favors the property market, but also responds to the central government's promotion of urban-rural integrated development and local governments' fiscal demands.

Second, resettlement serves its economic role mainly through the land finance mechanism. The local governments mainly implement this mechanism to adapt to neoliberal urbanization. Unlike western countries, land commodification instead of human capital and advanced technology has significantly facilitated urbanization in China (G. C. S. Lin, 2014). Similarly, Liu et al. (2016) pointed out that suburbanization in China results from capital accumulation through land-reserve and financing systems devised by local governments, whereas that in Western countries is contributed by the capital switch. The emerging role of local government indicates a transition from a "redistributive state" to an "entrepreneurial state(s)" (Wu, 2008). On the other hand, the decentralization of the central government reinforces local states' sovereignty and autonomy (Chien, 2013; Y. Liu et al., 2012). As commentators well note, the party-state rather than the capitalist class determines China's land commodification (Horesh & Lim, 2017; Ong, 2007; Wu, 2016). In this sense, the local state's proactive embrace of neoliberal urbanism is regarded as tacit behavior within the central government's planning framework. The problem with land commodification is that it inevitably leads to rural land encroachment and the displacement of landless farmers, which is sometimes accompanied by intensive social tensions and fierce confrontations (Lin, 2010). Resettlement thus is not only a result of the market-driven land enclosure but also one of the local entrepreneurial government's capital accumulation strategies.

Third, rural-to-urban resettlement involves a complicated transition process of property rights arrangements. The complexity is often associated with rural-urban land conversion, which is "a

3. Oftentimes, developers can be either state-owned or private enterprises. Both forms of developers collaborate with local government form the local growth coalition (Y. Du, 2019; Z. Qian, 2007; Q. Wu & Waley, 2018). For instance, the developer Greentown China has established a long and stable relationship with Hangzhou municipality in developing resettlement communities since 2005.

dynamic, multi-scalar, hybrid, and contested process involving different property rights agents in spatial territorial reorganization" (Z. Qian, 2022, p. 53). Many commentators maintain that clearly defined private property rights are essential to economic development (Deininger et al., 2015; P. Ho, 2017; X. Sun, 2016) and China's economic boom is achieved in wrong institutions that are "authoritarian, non-transparent, unclear, ambiguous and insecure" (P. Ho, 2013, p. 1088), which impose underlying risks to its economic system. The institutional constraints, while leading substantial externalities to rural-to-urban resettlement, have been used strategically by the state to exercise spatial selectivity (F. Wu, 2016a; Zhong & Su, 2019). Property rights systems in China should thus be interpreted from the perspectives of state-market relations as well as the state's role in territorialization and reterritorialization strategies. As Yang and Qian (2021, p. 5) argue,

> We identify that: 1) the local predatory government takes advantage of this ambiguity to advance urban resettlement, 2) the central government is promoting gradualist institutional changes to achieving equitable property rights, and 3) collective ownership of rural land can be conducive to landless farmers' post-resettlement adaptation.

In addition to the holistic and macro political-economic perspective, a micro perspective of resettled villagers' post-resettlement adaptation in China is instrumental in deepening our understanding of rural-to-urban resettlement. To this end, I introduce three types of mismatch: social mismatch, space mismatch, and location mismatch. The social mismatch indicates the resettled villagers' inability to adapt to urban social relations after the creative destruction of rural social networks. The space mismatch refers to the contradiction between resettled villagers' spatial demands for their rural living habits and the top-down created space in resettlement communities. Location mismatch points to the underlying issue associated with the arbitrary location choice of resettlement communities, which impedes resettled villagers' integration into host cities.

The displacement and relocation of resettled villagers are portrayed as "involuntary urbanization" (Chen et al. 2016). The socially and spatially passive transition disrupts villagers' existing social connections and community bonds. Hsing (2010b) acutely points out that this transition is essentially a deterritorialization process that destroys their collective identity and solidarity. Although resettled villagers' compensation package has improved over the years (Qian, 2015), resettled villagers are often in a difficult transition process of employment, which renders them more vulnerable in urban societies. Worse still, social relations based on the market mechanism in urban societies conceal

valuable assets that may assist with resettled villagers' adaptation, including cultural assets, social networks, senses of place, and socio-cultural livelihood practices (Gomersall, 2018). Prior studies highlighted the significance of villagers' rural social relations, such as clan and kinship-based relations and the acquaintance society, in facilitating resettled villagers' adaptation from economic, emotional, and socio-psychological dimensions (Z. Qian & Xue, 2017; Y. Wang et al., 2020b; W. Wu et al., 2019). For example, Qian (2019) found that social capital resources can help resettled villagers better manage their lump-sum monetary compensation for long-term livelihood. Wang et al. (2020) assert that kinship ties help mitigate landless farmers' feelings of discrimination in the host community. While being explicitly documented in the literature, the social mismatch issue is inadequately and implicitly addressed by contemporary resettlement policies.

The top-down planned and designed resettlement communities have homogenized spatial supplies for resettled villagers' social practices by fixing the physical container for everyday activities (Zhao and Zou 2017; Zhang et al. 2018). In most cases, resettlement communities are initiated by the local authority but developed by private developers who collaborate with the government through contracts. Without a public participation process, developers envisage a "modernized" living environment for resettled villagers by drawing experience from their previous urban real estate development projects. This building environment ignores villagers' living customs and cultural rituals (J. Li et al., 2016) and incurs external expenditures to farmers, including food expenses, community service fees, transportation costs, and others (Zhao and Zou 2017; Liu et al. 2018). As is well documented in previous literature, resettled villagers conduct spontaneous and sometimes informal spatial transformations to meet their spatial demands (J. Li et al., 2016; W. Wu et al., 2019; W. Zhao & Zou, 2017). Such spatial practices contribute to the formation of urban informality in China (M. Zhang et al., 2018), and this informality can also be perceived as "persistent rurality" in urban areas (Chung, 2013). It is worth noting that recent literature has reminded us that resettled villagers is a heterogenous group, and those who have long urban exposure can better adapt to urban living.

There is a lack of literature that delves into the locational and spatial characteristics of resettlement communities. Through resettlement, resettled villagers are spatially clustered in resettlement communities with suppressed mobility (Sheller & Urry, 2006) and changing work-residence nexus. Resettlement-induced mobility change is closely related to residential mobility and employment mobility (Coulter et al., 2016; Cresswell et al., 2016; Hankins et al., 2014). In this line of conceptualization, resettlement involves *de facto* relocation of the labor force from rural to urban

areas. Yet, resettled villagers' efforts in participating in the urban labour market are arduous without possible employment outlets and spatial barriers due to resettlement communities' remote location. While spatial mismatch in the western, especially the US, context is mainly about "residential centralization of race-based neighborhoods in employment-decentralized metropolitan areas' (Y. Xu et al., 2014, p. 2), the Chinese version focuses on the contradictions between employment opportunities in urban centers and low-income residents living in the suburb areas (E. Wang et al., 2011). Resettlement communities tend to be clustered in urban fringe areas considering the economic constraints and villagers' preference for in situ resettlement (Y. Xu & Chan, 2011). This spatial barrier often leads to issues such as immobility and segregation (Liu, Wang, & Chai, 2010). Spatial differentiation of residential neighborhoods in the Chinese context has roots in socialist legacies and institutional constraints beyond socio-economic stratification in the western contexts (Logan, 2013), such as work-unit and hukou systems. According to Wu (2004), segregated residential neighborhoods in China include inner-city shabby residences, old industrial neighborhoods, and urban villages. The emerging resettlement communities have become an essential component of urban residential neighborhoods, and the spatial differentiation between resettlement communities and other urban residential communities warrants further attention, which serves the primary objective of the research presented in Chapter 1.

To sum up, the idea of resettlement with Chinese characteristics aims to situate rural-to-urban resettlement in China's distinctive political-economic context, which creates certain conditions for interpretation, e.g., the interaction between planning and market mechanism and specific socio-spatial barriers to overcome, e.g., the three types of mismatch. This idea is integral to the analytical process of this research, which starts with applying western theories to examine Chinese phenomena but concludes with adapted and reflexive theoretical frameworks. Such frameworks are presented in the following sections.

1.2.3 A four-dimensional framework of inclusive resettlement

The recent literature in development studies, particularly in the Global South, has proposed an "inclusive turn" (Meagher, 2021) as a way to address the unintended consequences of development through comprehensive conceptual and practical frameworks (Rauniyar & Kanbur, 2010). Nevertheless, there has been little attempt to define and implement "inclusive resettlement" in relevant policies. This lack of attention is evident when searching for the term on Google Scholar.

While several conceptual frameworks have been introduced to promote inclusive resettlement, such as the impoverishment risks and reconstruction model (Cernea, 1997), involuntary resettlement (Wilmsen & Wang, 2015a), the sustainable livelihoods framework (Bui & Schreinemachers, 2011), and the just resilience concept (Miller, 2020), there has not been a systematic and specific framework developed for inclusive resettlement. This study identifies four dimensions of inclusive resettlement - economic development, social stability, spatial adaptation, and political inclusiveness - by drawing on existing literature on resettlement.

Fostering economic development/enhancement and maintaining social stability are commonly discussed in the literature. In principle, resettlement should safeguard resettled people from socioeconomic hazards, but the all-too-frequent impoverishment risks (Cernea, 1997) prompt concern. According to Zaman et al. (2021), land valuation and compensation issues are the very basis for the affected people's well-being and economic rehabilitation. Although institutional efforts, such as the World Bank's involuntary resettlement policy, the Operational Principals/Bank Procedures 4.12 (OP), aim to fill the gap in policy framework through international coordination for compensation policies at the state and sub-state levels, there is escalating resistance from borrowers to complying with the involuntary resettlement policy. Based on a survey of 40 Asia Pacific cases, Price (2019) concluded that there are few legal frameworks that prioritize livelihood enhancement and impoverishment alleviation as objectives for post-resettlement. In China, unjust compensation is endemic (Y. Wang et al., 2020b). Several reasons contribute to unjust compensation, including the uneven geography of cities and villages (Lim, 2014), the heterogeneity among resettled villagers (Tong et al., 2017), power imbalance among various stakeholders during resettlement (Y. Hu et al., 2015), and the ambiguous property rights (Tang et al., 2015). Although there is noticeable progress on compensation issue in different countries, such as Vietnam, China, and India (Bui & Schreinemachers, 2011; Z. Qian, 2015a; Ren, 2017), just compensation as the premise for economic rehabilitation/development should be one of the fundamental pillars for inclusive resettlement.

Early conceptualizations of resettlement have recognized the inevitable social cost incurred (Price, 2019; Sherbinin et al., 2011). Prior literature has also pointed to social rehabilitation approaches to re-establish social networks within resettlement communities or between the resettled and host communities as feasible approaches to make up such costs (DeMoss-Norman, 2015). The displaced people's social capital plays a significant role in facilitating such a rehabilitation process. Indeed, social capital, along with human, natural, financial, and physical capital, are decisive to people's

choice of livelihood strategy and to what extent they can achieve their desired livelihood outcomes. Various forms of social capital, such as "membership of groups or associations" and "safety nets" (Bui & Schreinemachers, 2011, p. 772) are crucial to the displaced when they are in desperate need of helping hands. In addition, individuals' social capital has further implications on their employment opportunities, physical mobility, and social obligations (M. Zhang et al., 2017), all of which correlate with their post-resettlement adaptation. Although resettlement literature agrees that social capital is beneficial for people's post-resettlement adaptation, well-established and detailed social impact assessment laws and regulations are inadequate, and most of them deal with social issues in general terms (Price, 2019). The specialized project social impact assessment is also loosely defined, such as "Social Impact Assessment" in the US, "Social analysis" in the UK, and "Sociological analysis" in the international development context. Besides, the hukou system and kinship-based rural relations have complicated social impact assessment in China (L. Wu & Zhang, 2018). As such, stressing the significance of social stability is also integral to inclusive resettlement.

Spatial inclusiveness of resettlement adaptation is inadequately examined in the existing literature, partially because that top-down created resettlement communities are purported to be urbanized and formally planned, which are superior to the previous settlements of the affected (DeMoss-Norman, 2015). Rogers and Wilmsen (2019) also noted that "the spatial practices of resettlement have been insufficiently theorized" (p.3), and resettlement can be perceived as "a governmental program that rests on territorializing ideas and practices" (p.13). However, such conceptualization still lacks accounts of the concrete spaces in resettlement communities. As mentioned above, addressing the spatial mismatch between the resettled people's spatial practices and the top-down created abstract space is integral to spatial inclusiveness. Recent studies have shifted the foci in this vein by focusing on resettled people's spontaneous spatial transformation to achieve spatial adaptation (J. Li et al., 2016; S. Zhang & Qian, 2020; W. Zhao & Zou, 2017). Against this backdrop, spatial adaptation should be another building block for inclusive resettlement.

Last but not least, resettlement is more than a "spatially and temporally bounded event" (Rogers and Wilmsen, 2019) but is fraught with political complexities (Eriksen et al., 2015). However, the political dimension of resettlement, especially the power dynamics among stakeholders, is often not reflected in resettlement policies (Price, 2019). The technocratic and managerialist approaches marginalize the affected from effective decision-making, and thus the political inequality further determines who, how, and to what extent people are affected. Wilmsen and Webber (2015b) stress

that the nature of resettlement projects is that the affected are overpowered by planning and policies, which leaves room for only "tokenistic rather than meaningful participation" (p.78). In the Chinese context, the state-led resettlement projects even marginalized all non-state stakeholders (Siciliano, 2014; M. Wang & Lo, 2015). In recent years, public and community participation has been implemented in various types of resettlement projects, such as post-disaster resettlement, ecological resettlement, inner-city renewal, and climate change-induced resettlement (Abebe & Hesselberg, 2015; Jamshed et al., 2018; Lei et al., 2017; Peng, 2014; W. Wang et al., 2018). However, the idea of institutionalizing and formalizing participation may fail to effectively address the political inequality in resettlement. The informality that prevails in post-resettlement communities is seen as the political struggles of the affected (Roy, 2005). Although political inclusiveness can have diverse denotations in countries with different political settings, it ultimately serves as a fundamental underpinning for inclusive resettlement.

The four dimensions of inclusive resettlement are conducive to our perception of an ideal resettlement model, but it is still unclear how inclusive resettlement can be achieved in practice, especially in the Chinese context. While the Chinese state sees resettlement as a development opportunity for resettled villagers, the longstanding disparity between rural and urban areas is less likely to be addressed through a one-off top-down project. Therefore, how to achieve long-term sustainable development and inclusive resettlement for the affected remains the biggest challenge for China's policy reorientation toward new-type urbanization (M. Chen et al., 2016).

1.3 The Conceptual Framework

This research proposes an integrated conceptual framework that combines three lines of theories – planetary urbanization, space production, and the right to the city - to outline how rural-to-urban resettlement unfolds in urban China and how villagers adapt to resettlement projects and host cities. As such, three conceptualizations are presented: urbanization through resettlement, space production in resettlement communities, and the right to resettlement. The first conceptualization situates rural-to-urban resettlement in the debates around planetary urbanization. It argues that resettlement is a specific form of state-led urbanization in China. However, due to the distinct political-economic and historical contexts and the positionality of the Global South, urbanization through resettlement cannot be fully captured by the planetary urbanization framework. By invoking geographies of ruralization (Gillen et al., 2022b), I argue that urbanization through resettlement illustrates a dominant

urbanization process counteracted by episodes of ruralization. The second conceptualization revisits the seminal theory of space production (Lefebvre, 1991) and sees space production during resettlement as a social process, such as spaces of concentrated resettlement communities. In this sense, resettled villagers' post-resettlement adaptation can be captured by observing and interpreting spatial configurations and transformations. In addition, the mismatch between villagers' social practices and governments' technocratic planning and design can also be explained from a spatial perspective. The third conceptualization attempts to facilitate a deep understanding of barriers to resettled villagers' inclusive resettlement and how their social agency contributes to their post-resettlement adaptation. Drawing from the concept of the right to the city, the concept of the right to resettlement highlights the significance of resettled villagers' active participation in resettlement projects.

1.3.1 Planetary urbanization and urbanization through resettlement

In 2007, more than half of the world's population lived in cities, which indicates the commencement of the "urban age" (Brenner & Schmid, 2014). The notion of planetary urbanization has its root in Lefebvre's writing, which predicts a complete urbanization of society (Lefebvre, 2003). The current paradigm shift is marked by Brenner and Schmid's (2015) seminal paper - *Towards a new epistemology of the urban*. In their formulation, urbanization should be interpreted through an epistemological framework that considers urban/urbanization as theoretical categories rather than empirical objects, a process not a universal form, an assemblage of three moments, a multidimensional construct, a variegated and uneven unfolding, and a collective project. Central to their arguments is the three moments of urbanization – concentrated, extended, and differential -- which is analogical to Lefebrve's classic triad of space production (Lefebvre, 1991; Schmid, 2008; Watkins, 2005). The concentrated urbanization highlights large agglomerations in cities or "distant agglomerations" (p.167) due to the historical and contemporary geography of urban transformations. Extended urbanization involves the operationalization, reorganization, and enclosure of land in non-urban areas, which, in theory, supports the social and economic activities of concentrated urbanization. Such practices in extended urbanization inevitably inflict the creative destruction of socio-spatial relations in non-urban or peri-urban areas to produce new urban potentials, which is conceived of as differential urbanization.

Rural-to-urban resettlement functions in a similar mechanism. According to Wilmsen and Webber (2015a), "people and places are made more amenable to incorporation within the capitalist economy" (p.82) through resettlement. In this sense, resettlement follows the three-moment framework. First, rural-to-urban resettlement intends to concentrate villagers living in scattered locations, consolidate fragmented rural land, and improve the efficiency of service provision. Second, urbanization has been extended through resettlement by constructing concentrated resettlement communities, introducing an urban economic system, implementing an urban community governance system, and imposing urban social relations (based primarily on market exchange). Third, resettlement incurs a mismatch between resettled people's spatial demands and the imposed abstract space (C. Yang & Qian, 2022b), social tensions between the resettled and other social groups, and political struggles against capitalist space production. To quote Brenner and Schimid (2015, p.168),

> In such approaches, successive configurations of the urban built environment are thought temporarily to internalize the underlying contradictions of capitalism associated, for instance, with class struggle, property relations, over accumulation and the political control of surplus value.

In addition, following this line of reasoning, as urbanization has become a global condition, urbanization rather than development has become the mainstream force of resettlement.

However, as commentators have well noted, planetary urbanization becomes problematic when it comes to its universal application in the Global South (Jain & Korzhenevych, 2022; Oswin, 2018; Schindler, 2017; Wyly, 2020). Since the theory originated primarily from Brenner and Schmid's observation of Zurich (Schmid, 2018) and Lefebvre's observation of Paris, the complete urbanized future may not speak for the Global South. The thesis that the non-urban realm "has been internalized into the very core of the urbanization process" (Brenner & Schmid, 2015, p.174) is a conceptual necessity but fails to account for urban-rural transformations happening outside the urban, such as planetary suburbanization (Keil, 2017; Wyly, 2020), Southern urbanism (Schindler, 2017), "Urbanization 2" (Derickson, 2015), the view from the outside (Jazeel, 2018; Oswin, 2018), and the geography of realization (Gillen et al., 2022b). Brenner (2018) himself summarized the criticisms of planetary urbanization as follows: 1) the lack of reflexive questions of positionality in social theory, 2) limited or no attention to questions regarding gender, sexuality, race and difference, 3) the idea being homogenous, universal and imperial. Acknowledging the above limitations of the theory, I argue that given China's distinctive political economy at play, planetary urbanization unfolds in a

specific model that combines capitalist logic and state planning in producing space. The recent planning initiative of rural revitalization under the macro policy rhetoric of urban-rural integration has an important role to play in China's planetary urbanization framework (see Figure 6 in C. Yang & Qian, forthcoming). In this sense, a contextualized understanding of rural-to-urban resettlement in China warrants careful analysis of the state's role beyond the capitalist logic and planning intervention alongside the market mechanism.

One particular line of debates that pertains to this dissertation reengages with urban-rural relations and questions the obvious urban-centric internalization epistemology embedded in planetary urbanization, though Brenner and Schmid clearly deny the geographical rural-urban dualism (Brenner & Schmid, 2015b). Gillen et al. (2022b)'s path-breaking concept of "geographies of ruralization" is a critical departure point for unpacking the complexity of urbanization as well as resettlement practices from urban-rural relationality in Asian countries given that "people in the Global South whose perspectives on urbanization are entangled with ongoing rural dynamics" (p.186). Similar to the three moments of urbanization, there are three geographies at work in ruralization, including in situ ruralization, extended ruralization, and rural return. The three geographies emphasize the ongoing (re)production of stereotypically rural spaces, the persistence of rural living strategies, and people returning to rural periodically or permanently, respectively. The regional situatedness has led to distinct readings of development trajectories worldwide: the urban-centric interpretations based on observations in Zurich (Schmid, 2018) and Paris and the rural-centric analysis based on Southeast Asia (Gillen et al., 2022a). In this sense, the blurred and merged spaces in-between have become the frontiers for theoretical ferments, especially regarding the "telecoupling" of urban and rural spaces if we were to abandon the urban-rural binary (Baird, 2022). Following this line of reasoning, I contend situating resettlement studies in the above debates would significantly advance our understanding of how resettlement unfolds in the Global South and, more importantly, how the resettled people are affected spatially, socio-economically, and politically. After all, resettlement projects often produce new urban spaces for the resettled people who, ironically, live in "a socially rural space" (Gillen et al., 2022b).

Following the above reasoning, rural-to-urban resettlement, as a specific form of urbanization, then lies under the three moments of the planetary urbanization process. Yet, considering the resettlement knowledge is grounded in the Global South context, the geographies of ruralization are incorporated into our framework as complementary to the urban-centric epistemology. The three moments of

urbanization through resettlement should also be interpreted as dynamic elements that are mutually constitutive and dialectically intertwined.

The concentrated moment. Rural-to-urban resettlement (RUR) is state-led, which intends for effective resource management through the concentration of rural population in concentrated resettlement communities, the consolidation of fragmented and dispersed rural lands, and the clustering of infrastructure construction. It involves the production of built environments, socio-spatial configurations, and political structures to harness the power of agglomeration. Unlike the market-driven agglomeration process, resettlement is planning-driven, where planning supports the process with institutional support, governance regime, and service provision. However, this concentration serves not only urbanization but also ruralization as it involves the reproduction of rural landscapes and settlements, especially given China's top-down strategy of rural revitalization (N. Chen & Kong, 2022).

The extended moment. As mentioned, RUR intends to achieve effective resource allocation and management of rural lands by increasing the quantity and improving cultivated land quality. It also aims to supply urban construction land for development through China's "increase versus decrease balancing land use policy" (W. Gao et al., 2021). Moreover, the operationalization of rural land also targets ecological restoration in degraded areas (M. Fan et al., 2015). The construction of infrastructures through resettlement reinforces the connection between the resettled rural population and the urban areas, and in some cases, also upgrades existing infrastructure to fuel rural tourism development. While RUR does not lead to "the enclosure of land in favor of privatized, exclusionary, and profit-oriented modes of appropriation" (Brenner and Schmid, 2015), since all rural land in China is collective-owned, it does facilitate the transition from small-holder to industrial and intensive agriculture. In contrast to the extended urbanization that focuses on the accumulation strategy by exploiting non-urban resources, the extended moment of resettlement adopts an integrated approach, which renders places with the potential of urbanization more urban whereas places more ideal for rural development more rural (Wilczak, 2017). In addition, the extended moment also involves extended *ruralizaiton*, which highlights the relational and enduring rural dynamics. That is, although resettled people are physically relocated into urban areas, they tend to maintain connections with their previous rural home both physically and socially. Such rural dynamics foster the re-establishment of rural spatial patterns, social networks, economic activities, politics and governance structures.

The differential moment. The differential moment focuses on the contradictions embedded in resettlement, particularly those between the concentrated moment and extended moment, abstract space and differential space, and urban and rural. The differential moment thus involves the creative destruction of socio-spatial arrangements of the resettled and their settlements. State-led resettlement can be conceived as a manifestation of the State Mode of Production (Brenner, 2001), where the space produced is instrumental, urbanized, and homogenizing. The differential moment is also "the result of various forms of urban struggle and expresses the powerful potentials for radical social and political transformation" (Brenner & Schmid, 2015b, p. 168). However, the affected are often faced with a strong state in resettlement projects, and thus their agency to struggle may be largely suppressed. In such cases, urban struggles often materialized in the form of urban informality in the Global South. The differential moment is conducive to the understanding of the post-resettlement adaptation process in resettlement communities, especially through unpacking how resettled people address the above contradictions.

The conceptual framework of three moments of resettlement offers a generalized idea of how rural-to-urban resettlement unfolds in favor of urbanization but simultaneously introduces ruralization into the urban realm. Echoing Rogers and Wilmsen (2019), the framework offers a deep and nuanced "understanding of *why* resettlement happens, and *how* it happens[…]" (p.13, emphasis in original), and provides political-economic accounts of rural-to-urban resettlement in China. Nevertheless, the framework concerns more with the macroscale contextual analysis of resettlement in China and thus is inadequate to account for resettled villagers' interaction with resettlement. Therefore, the following section introduces the second conceptualization of how space is socially produced in resettlement communities.

1.3.2 Space production in resettlement communities

Space is a social product (Lefebvre, 1991). Henri Lefebvre's seminal theory of space production challenges the past conceptualization of space, which marked the "spatial turn" in social sciences (Sheller, 2017). This idea serves theoretical foundation for further studies in critical geography, critical urban studies, and others who inquire about space, difference and everyday life in cities (Goonewardena et al., 2008). Inspired by observations of everyday life in French, Lefebvre responds to the crisis of Marxism with a postmodern perspective and empirical research, where he argued state capitalism and state socialism are to be replaced by "the collective management of space, the social

management of nature, and the transcendence of the contradiction between nature and anti-nature" (Lefebvre, 1991, p.102, as cited in Stanek, 2011). The collective management of space was further elaborated on through the notion of the right to the city (Lefebvre, 1996). While the theory itself is elusive, given Lefebvre's long immersion in French critical literature (Unwin, 2000), Schmid (2008) suggests adopting a relational perspective in reading the theory. The theoretical triad of space production has its root in Hegelian, Marxist dialectic thinking and Nietzsche's art, but was developed into a three-dimensional dialectic: "material social practice (Marx); language and thought (Hegel); and the creative, poetic act (Nietzsche)" (Schmid, 2008, p. 33). Following this reasoning, Lefebvre offers a three moments framework of space production, including spatial practice, representations of space, and representational spaces. Although the theory has been criticized for its Eurocentric perspective and deep entangled with Marxism (Unwin, 2000), it remains a pathbreaking theoretical underpinning for a sea of studies on urban space (Granzow, 2017; Tynen, 2019). This research thus invokes the theory as an entry point to understand the production of space in resettlement communities in the host cities.

Central to the theory is the conceptual triad that Lefebvre himself keeps "returning over and over again," and it is worth citing verbatim (Lefebvre, 1991, p. 33):

> 1 *Spatial practice*, which embraces production and reproduction, and the particular locations and spatial sets characteristic of each social formation. Spatial practice ensures continuity and some degree of cohesion. In terms of social space, and of each member of a given society's relationship to that space, this cohesion implies a guaranteed level of *competence* and a specific level of *performance*.
>
> 2 *Representations of space,* which are tied to the relations of production and to the 'order' which those relations impose, and hence to knowledge, to signs, to codes, and to 'frontal' relations.
>
> 3 *Representational spaces*, embodying complex symbolisms, sometimes coded, sometimes not, linked to the clandestine or underground side of social life, as also to art (which may come eventually to be defined less as a code of space than as a code of representational spaces).

Spatial practice thus highlights the materiality of social activities and interactions in a specific society since every society has its unique forms of social relations. In concrete forms, spatial practices can be everyday interaction and communication in residences, workplaces, public spaces, and production

processes (Schmid, 2008). Representations of space denote an abstract concept that emerges at the level of discourse and through the production of technocratic knowledge. Lefebvre (1991, p. 28) further elaborates on the representations of space as "the space of scientists, planners, urbanists, technocratic subdividers and social engineers." In contemporary society, the production of such representations is often in the hand of architects, planners, and geographers. Wilson (2013) believes such representations cater to the state's power over the control of space. Representational spaces emphasize the symbolic dimension of space that inhabitants and users produce. The key to understanding such spaces is the linkage between the signification and material symbols (Schmid, 2008). In this sense, this production process is to shape "spontaneity, diversity, and symbolic content" (Wilson, 2013, p.371) by "express[ing] and evokes social norms, values, and experiences" (Schmid, 2008, p.37). Therefore, the production of social space arises from the interplay among the three interconnected moments.

One of the fundamental conceptualizations of the theory is the concept of abstract space. The production of space deals primarily with the space of capitalism, and thus the abstract space derives from the Marxist idea of alienation of capitalist society. For Marx, alienation results from the separation of the producer from the means of production, which "estranges man from his own body, as well as external nature and his spiritual aspect, his *human* aspect" (Marx, 2016 as cited in Wilson, 2013). The alienation from everyday life is the major concern for Lefebvre's enduring efforts in conceptualizing abstraction. Besides the representation of space, Lefebvre also conceptualized the State Mode of Production by his observation of "the moment at which the State takes charge of growth" (Lefebvre, 2001, p. 773). Lefebvre (1991) wrote:

> The state is consolidating on a world scale. It weighs down on society (on all societies) in full force; it plans and organizes society 'rationally', with the help of knowledge and technology, imposing analogous, if not homologous, measures irrespective of political ideology, historical background, or the class origins of those in power (p.23).

The state space, therefore, is also an abstract space which is more instrumental and productivist in nature and is a political product. For Lefebvre, the technocratic representations "is thus not primarily concerned with the abstraction of the representation themselves but rather with the concretization of these abstractions as an expression of state power" (Wilson, 2013, p.370).

Bearing the above in mind, let us now conceptualize space production in resettlement communities by focusing on two themes: the three moments and the relations among the moments. Since rural-to-urban resettlement is a state-led project, resettlement communities can be perceived as spaces produced under the state mode of production, thus denoting the abstraction of space for resettled villagers. The representations are influenced by three primary factors: private developers' profit-seeking experience with real estate development, planner and architects' technical and sometimes individual knowledge of community design, and above all, the government's ultimate political control of urban society. It is worth noting the representations are closely embedded with urban, which is bound to incur tensions with resettled villagers' social practices. Given that resettled villagers are (in)voluntary urbanites (Chen et al. 2016), their social practices remain rural. The physical relocation has destroyed villagers' everyday production process and social interaction by wiping out the places for such activities. Yet, the traces of rural society still prevail in resettlement communities, which is understood as persistent rurality. In order to reproduce the symbolic landscape of rural society, resettled villagers conduct spatial transformations and engage with rural-style everyday activities. The production of representational spaces thus reflects the oppositions, contrasts or antagonisms between the other two moments and also the ongoing negotiation and reconciliation between the two. However, it is worth highlighting here that the above conceptualization grappled with the issue of "dialectical confusion" (Schmid, 2008), which sees the three moments in a linear relationship where the representational spaces (lived spaces) imply a late and stable stage of space production. This type of misinterpretation has deviated from Lefevre's original idea that the three moments are of equal value, and "space is unfinished, since it is continuously produced, and it is always bound up with time" (Schmid, 2008, p.43).

Space-time has constantly been contested in the field of geography (Couclelis, 1999; Kwan, 2013; Massey, 1999). Although Lefebvre (1991) reiterates that space production is "in fact, a process" (p.34) and "time and space are not separable […] space implies time, and vice versa" (p.118), the three-moments framework along with numerous applications with the framework tend to privilege space over time (Mendieta, 2008; Tynen, 2019). Unwin (2000) warned that "there is a danger that by focusing on the production or construction of space, we may create a damaging new fetish of space" (p.22). The problem with this "fetish of space" in explaining space production (for instance, of resettlement) is that it fails to account for why there are many distinct representational spaces (resettlement communities) produced at different times. Farrington (2021) also cautions that

Lefebvre's work should not be interpreted solely from a political economy perspective that sees space as a static entity. Following Lefebvre's original interpretation of space production as a spatial-temporal continuum, I argue that the conceptual triad of space production should rest on "a deep understanding of social relations in a specific temporal context" (C. Yang & Qian, 2022b, p. 4). That is, the three moments are constantly changing and(or) in the making, and thus the interconnectedness of the three moments is time sensitive. In this sense, resettlement communities produced at different times reflect only a specific production mode and a specific social relation in a specific society. With this dynamic spatial-temporal epistemological framework at hand, I construct a detailed and targeted conceptual framework for space production in resettlement communities in Chapter 3.

1.3.3 The right to the city and the right to resettlement

While inclusive resettlement (discussed in section 1.2.3) is central to resettled villagers' post-resettlement adaptation, there is a lack of an effective theoretical framework for achieving inclusive resettlement in the Chinese context. Against this backdrop, I seek help from critical urban studies and revisit the notion of the right to the city to conceptualize the idea of the right to resettlement. The literature on the right to the city challenges the capitalist mode of space production and calls for a politically inclusive society. Scholars have used the concept of radical openness to bring attention to political crises and social justice issues in urban areas (Attoh, 2011; Brenner et al., 2009This concept emphasizes two types of rights: the right to appropriation, which involves accessing, occupying, and creating new spaces that meet people's needs, and the right to participation, which allows people to have a say in decisions that affect where they live (Tayebi, 2013, p. 90). Given that Lefebvre's theory is grounded in his critique of capitalism, these two types of rights emphasize the use-value of space and the enfranchisement of the alienated people under capitalism (J. Qian & He, 2012). In this sense, the affected people by resettlement projects are joining with "the deprived and the discontented" (Marcuse, 2009, p. 191) of cities to claim their collective rights to their host urban space (Schmid, 2012).

Central to Lefebvre's conception of the right to the city is that city is an *ouvre*, a work that is produced through the daily activities of those who live there. In this sense, urban space should be a product of neither capitalism nor the state, but be created by its inhabitants collectively (Purcell, 2014). Therefore, much of the work on the right to the city focuses on the critique of existing urban policies, which are believed to be undemocratic and exclude the poor but prioritize the needs of

business and development. Resettlement policies also fall under this category of urban policies. Through rural-to-urban resettlement, villagers are made vulnerable to the use values of urban spaces that are dominated by affluent urban classes. It is especially the case in China as the dual forces of socialist institutional inheritance, particularly the hukou system, and the capitalist imperatives for development, especially the land economy, have suppressed the right to the city for rural migrants (J. Qian & He, 2019). Practical efforts in claiming the right to the city involve social movements and the institutionalization/legalization of the concept. While both forms of efforts have led to pronounced improvements in social equity in cities, concerns over the universality were raised by scholars. Brown (2013) cautions that the radical form of social movements, such as confrontation and violent struggles may incur long-term aftermath for individuals and the whole society, especially in the global south. In China, urban social movements are confined by rigid political control, which limits efforts only to individual struggles (S. He, 2015). Although the right to the city is currently being pursued within a liberal-democratic framework, some people claim that state officials are taking advantage of the concept (S. He, 2015), alternative ways of claiming the right are essential to realizing the full potential of the concept worldwide. According to Brown (2013, p. 968), "the alternative is changed by attrition, when myriads of small actors claim dominion over the urban realm through incremental change, backed by appropriate laws and regulations." The gradualist approach does not preclude the radical politics of the concept but emphasizes a context sensitive pragmatic implementation.

According to scholars, the concept of the right to the city encompasses multiple subsets of rights, as well as trans-local and community-based organizations, and urban policies. It is considered an umbrella idea (Mayer, 2009; Purcell, 2014; Schmid, 2012). The subsets of rights include the right to housing (Rolnik, 2014), to design and aesthetics in an urban arena (Jabareen, 2014), to mobility around the world (Nevins, 2017), to use/inhabit/define public space (Iveson, 2013), to data and digital techniques of city making (Breuer & Pierson, 2021), to energy and urban infrastructure (S. Becker et al., 2020), and others. Overall, these rights are under threat and suppressed by the proliferating neoliberalism and the capitalist mode of space production, where the exchange value rather than the use value plays the dominant role.

Based on the above reasoning, I shall thus develop the concept of the right to resettlement. Although the idea of the right to resettlement derives from the right to the city, its distinctiveness lies in the following aspects. First, the right to resettlement differs from the right to the city, which focuses on the exchange value of urban space and the battle against capitalist space production. The

right to resettlement not only challenges the capitalist logic of production, specifically in cases of development-induced resettlement and displacement (Zaman et al., 2021), but also competes against the state mode of production, like rural-to-urban resettlement and poverty alleviation resettlement in China (C. Yang & Qian, 2021; Y. Yang et al., 2020). The state's role should not be viewed as a representative of capitalism, but as the primary participant in producing urban spaces. Second, the right to resettlement should also be conceived of as an umbrella idea that incorporates various subsets of rights, such as the right to economic enhancement, spatial adaptation, social stability, and political inclusion. Similar to those subsets of rights under the right to the city, those of resettlement each have the potential to serve as an independent analytical lens for further research and nuanced understandings of the right to resettlement. In addition, there is a potential here for conceptualizing other subsets of rights to resettlement in future studies, the right to services and the right to property rights, for instance. Third, mindful of the political-economic context in the Global South, which is the main source of knowledge about resettlement, theoretical approaches to claiming the right are anchored with informality. Considering the lack of a mature democratic political system and an ambiguous property rights regime, the theoretical approaches include 1) space (re)construction rather than space appropriation and 2) political struggle instead of political participation. The former refers to unauthorized (re)construction and informalized production of space due to ambiguous property rights, and the latter reflects Roy's (2005) comment that informality is a complex political struggle.

Last but not least, due to the distinctive political economy at play, the practical approaches are idiosyncratic, including the bottom-up creation of urban informality, selective management of diverse informal practices, and collective strategies of negotiation. The creation of informality is represented by informal property rights systems, informal settlements for spatial adaptation, informal economy for economic enhancement, informal governance for social stability and non-institutionalized participation for political inclusiveness, and so forth. The state's selective management of informality is best captured by the notion of "conceded informality" in China, which is defined as "an implicit and differentiated system of approaches that, taken together, allow for a flexible management of diverse informal practices depending on their relevance, usefulness and potential threat towards state authority" (Schoon & Altrock, 2014, p. 216). In this conceptualization, the party-state adopts various strategies in dealing with informality: actively support, promote, utilize, tolerate, and overcome. Other commentators also noted the selective implementation of informal property rights in the Chinese context (M. Cai et al., 2020; C. Yang & Qian, 2022c). This top-down approach is similar to

that of institutionalization/legalization of the right to the city. Furthermore, collective rights serve as the backbone of claiming the right to resettlement. In many cases, the affected people's negotiating power largely depends on their collective efforts and solidarity. The urban project, as well as the resettlement, is a collective endeavor (Brenner & Schmid, 2015b). The collectivism that existed within the affected community is integral to post-resettlement adaptation, although it can take various manifestations, such as social bonds, customary laws, and shareholding mechanisms. Particularly in China, the socialist legacy and the collectivism that long existed in rural villages are essential for villagers to improve their negotiating power with the state and claim the right to resettlement. The entrenched political instability and powerful state dominance in Asian cities have significantly hindered the development of inclusive resettlement. Therefore, the right to resettlement is a departing point for the reorientation of resettlement policies and practices to an inclusive direction. This dissertation kicks off the process by investigating different subsets of rights – the right to spatial adaptation (services in urban areas in Chapter 2) and the right to economic enhancement and social stability (property rights in Chapter 4). The two are also interrelated as changes in property rights lead to resource redistribution, such as changes of proximity, accessibility of services, housing, and employment (Z. Qian, 2022).

1.4 Research objectives and significance

The above background presentation and conceptualization point to a scholarly imperative to explore the rural-to-urban resettlement process and various stakeholders involved in contemporary China, especially the state and the affected. Most importantly, this research intends to foreground rural-to-urban resettlement in the existing literature to facilitate a deep and nuanced understanding of this state-led model and its impact on resettled villagers. In doing so, this research uses the prism of concentrated resettlement communities to unpack how resettled villagers are impacted by, adapt to, and interact with the state-led resettlement project. As such, this research makes theoretical and empirical contributions to the existing literature in the following aspects.

First, this research examines the spatial characteristics of concentrated resettlement communities, especially regarding the accessibility to services, in contemporary urban China, which is essential to our understanding of resettled villagers' post-resettlement spatial adaptation. The mushrooming of resettlement communities in urban areas has contributed to China's transforming urban landscape. Neighbourhood differentiation (L. Zhang et al., 2022; M. Zhao et al., 2018) and neighbourhood

deprivation (D. M. Smith et al., 2010; C. Wan & Su, 2016) have been highlighted by urban scholars in depicting the uneven development in urban settings. As a unique type of urban neighborhood arbitrarily created by the government, resettlement communities are often perceived as poor, messy, and uncivilized enclaves in cities, which are subject to disamenity effects (M. Zhang et al., 2022) and stigmatization (M. Zhang et al., 2021). While prior studies have explored resettlement communities through various perspectives (Beier, 2020; X. Gao et al., 2021; Z. Qian & Zhang, 2021; S. Zhang & Qian, 2020; L. Zhou & Xiong, 2019), there is a lack of quantitative research that presents the current situation of resettlement communities, especially from a spatial perspective. This research proposes indices of multiple deprivations for resettlement communities to provide quantitative indicators of the spatial inequality of resettlement communities. As an essential component of unpacking rural-to-urban resettlement in China, capturing the spatial characteristics of concentrated resettlement communities help construct a general knowledge background for further inquiries into social, institutional, and political dimensions associated with resettlement.

Second, this research offers a dynamic interpretation of space production in concentrated resettlement communities. One of this research's central theoretical underpinnings is that space is a social product (Lefebvre, 1991). Following the space production theory, this research situates resettlement communities in the three-moment framework. Although the framework is effective in examining how space in resettlement communities is produced through the interaction and conflicts between the resettled villagers' social practices and the technocratic planning and design, it can be further enhanced by adopting a spatial-temporal perspective. That is, resettlement communities produced at different times reflect the reconciliation of "contradictions in the social relations" (Lefebvre, 1991, p. 46) at a given time. This dynamic framework is instrumental in exploring how resettled villagers adapt to the top-down created resettlement communities and urban living in the host city, and thus pinpointing the major hindrances to resettled villagers' post-resettlement adaptation and deficiencies in existing resettlement policies.

Third, this research further reveals a deep-rooted ambiguous property rights issue that impedes an inclusive rural-to-urban resettlement. Resettled villagers' right to property rights is essential to their social and economic practices and successful resettlement practices. China's dual land ownership structure has created distinctive land markets in rural and urban areas, and the issue of ambiguous property rights systems is theoretically regarded as a rural issue (P. Ho, 2001). Ideally, rural-to-urban resettlement enables achieving equitable property rights for resettled villagers by transforming rural

property rights arrangements into urban ones. However, this research presents that the complexity of property rights embedded in rural-to-urban resettlement often deviates from the ideal path in reality. Building on the findings from previous two aspects, this research further argues that the complexity of property rights serves as the underlying factor in contributing to the spatial facts, e.g., stigmatization, and socio-ecnomic contradictions, e.g., spatial appropriation and informal economic activities, in resettlement communities. Theoretically, this research conceptualizes the complexity of property rights as a transitional state of property rights arrangements which requires planning intervention to become credible (You et al., 2022).

It is worth noting that the knowledge generated from this research has potential relevance for the future development of international communities, especially those from the Global South. China has improved its international influence by becoming a global financial leader and pushing international practices and rules in developing countries, such as in Africa (Humphrey & Michaelowa, 2019). Moreover, the loosely defined Chinese model of development has materialized in African countries' political systems and policy decision makings (McCauley et al., 2022). The discussions on China-Africa relations, whether a neo-imperialism or a neo-colonialism, are inconclusive (Lumumba-Kasongo, 2011). In either case, China's model of urbanization through resettlement, especially the "resettlement with Chinese characteristics" (Yang & Qian, 2021), has the potential for policy mobility and thus contributes to promoting urbanization and achieving Sustainable Developing Goals (H. Xu et al., 2022) in other developing countries to a certain extent.

1.5 Research Questions

This research attempts to address three sets of interconnected questions, which together contribute to a novel and nuanced understanding of rural-to-urban resettlement in China and its implications on the affected and sustainable urban development in China and the international context. This research uses Hangzhou as the case to shed light on resettlement studies in China.

First, this research explores one of the spatial characteristics of resettlement in China -- the accessibility to services of resettlement communities. This responds to the large body of literature on neighbourhood differentiation in urban China, exposing the arbitrary locational choices of resettlement communities. Specifically, what is the spatial pattern of resettlement communities regarding their access to services? How the spatial characteristics of the resettlement community impact resettled villagers' adaptation to the host city, and to what extent? The inquiries probe part of

the “what” dimension of resettlement communities and offer a concrete setting for deep engagement with “how” questions.

Second, this research investigates how space is produced in resettlement communities. This line of inquiry builds upon the idea that space is a social product and aims to delve further into the mechanism of space production from a spatial-temporal perspective. In doing so, this research is interested in the following questions. What are the features of space in resettlement communities at different times? How have such features changed, and what are the major drivers for such changes? What is the relationship between such features and the resettled villagers, and how do space changes interact with resettled villagers’ post-resettlement adaptation? In sum, this set of questions offers a new analytical lens for resettled villagers’ adaptation process and the evaluation of resettlement policies.

Third, this research further engages with institutional constraints for rural-to-urban resettlement. Building upon the previous two sets of questions, this research attempts to foreground the property rights issue embedded in China’s institutional arrangements, which serves as the structural barrier to inclusive resettlement. How has China’s property rights system influenced rural-to-urban resettlement practices and resettled villagers’ post-resettlement adaptation? How has rural-to-urban resettlement restructured property rights arrangements among resettled villagers, and how do such rearrangements enhance or deteriorate resettled villagers’ everyday living? How can equitable property rights for resettled villagers be achieved, and what is the state’s role in this process?

The step-wise questions facilitate a structured analysis of rural-to-urban resettlement in China primarily through the medium of resettlement communities. The answers to such questions enable effective responses to questions of the current situation of resettlement communities, how the resettlement communities are produced, and why resettlement communities are produced in their current form. However, as I will highlight in Section 5.4, further inquiries are essential to a comprehensive and deep capture of China's ongoing rural-to-urban resettlement practices.

1.6 Research Methodology

This research adopts an explanatory sequential mixed methods approach (Creswell, 2014) that includes a two-phase approach where quantitative analysis is conducted first and then qualitative. This research uses resettlement projects in the City of Hangzhou as cases to answer the research questions. Hangzhou is one of the most developed metropolises in China’s Yangtze River Delta

Region, with a total population of 12.2 million and an urbanization rate of 83.29% as of 2021. Notwithstanding being the most urbanized region, the city is best featured by its non-state economy, the Town and Village Enterprises (TVEs), as well as rural-urban land reforms (Z. Qian, 2015c). With the booming economy, the city adopted various land-related policies to fuel urban growth, including land banking, hybrid land dispossession compensation methods, and social housing projects (Hui et al., 2013a; Y. H. D. Wei, 2012). Amid this massive socio-spatial transformation, villagers living in the peripheral areas bear the brunt of urban expansion and administrative reclassification. The empirical case of this research is informed by rural-to-urban resettlement projects in Hangzhou's Economic and Technological Development Zone (ETDZ) in the Xiasha subdistrict. From 2002 to 2017, 12 local villages were moved to urban areas, with more than 20,000 rural residents resettled to concentrated resettlement communities. This research offers first-hand evidence of how rural-to-urban resettlement unfolds in China by examining this decade-long course of resettlement practices and resettled villagers' post-resettlement adaptation in resettlement communities. The research case is further introduced with details in Chapter 2, Chapter 3, and Chapter 4.

The methodology design is grounded upon a blend of constructivist and pragmatic worldviews (Creswell, 2014). First, this research is interested in space as a social product and thus investigates the meaning of resettlement which is created through resettled villagers' interaction with space and society. Qualitative data collected through field observations, interviews, and questionnaire surveys facilitate the interpretation of villagers' subjective views of resettlement based on their historical and social perspectives. Second, as resettlement is a complex process and involves "wicked" problems (Rittel & Webber, 1973), this research intends to use pluralistic approaches to unpack these problems. As such, mixed methods approaches are used to collect quantitative and qualitative data and examine the research's what and how sides. Specifically, this research first conducts quantitative research to provide evidence of what the current situation of resettlement communities and resettled villagers. Building on the quantitative results, this research uses a qualitative approach to further explain the barriers to resettled villagers' post-resettlement adaptation, especially regarding how the barriers are formed and why such barriers persist. The mixed methods approach enables a combination of two types of information (quantitative and qualitative), and thus provides greater insights into rural-to-urban resettlement that could have otherwise been ignored (Bowen et al., 2017). Although it is supposed to be a sequential process, mixing or integrating quantitative and qualitative data at some point in the research is critical to generate meaningful insights (Tashakkori & Teddlie, 2021). While

been lauded for its straightforwardness and opportunities for detailed exploration of quantitative results, the explanatory sequential mixed methods approach is limited by lengthy time as well as feasibility and(or) availability to collect and analyze the two types of data (Ivankova et al., 2006). It is also worth noting that different research may prioritize either quantitative or qualitative components depending on research objectives, the scope of research questions, and research design.

The mixed methods approach involves three main stages, including pre-fieldwork preparation, fieldwork in Hangzhou, and data coding and analysis. In the first stage, I conducted an extensive and intensive literature review and policy analysis on resettlement practices in China. For the literature review, I collected more than 300 published papers from the Web of Science with the keyword of "resettlement" and synthesized them into a review article (C. Yang & Qian, 2021). Although the review is by no means exhaustive, it laid out a clear outline of knowledge for my fieldwork. For policy analysis, I collected Chinese policies on themes that are relevant to resettlement, including "rural land," "land requisition", "compensation," and "resettlement." Such policies are integral to capturing the big picture of China's institutional settings for resettlement practices, especially for rural land and rural population, which is instrumental in designing interview and questionnaire surveys. Analyses to these policies were further incorporated in my published papers (see Chapters 2, 3 and 4). During this period, this research received ethics clearance from the Human Research Ethics Board of the University of Waterloo (file number. 43465).

The second stage involves fieldwork in Hangzhou. Due to the mixed methods approach design, various methods were employed to collect both qualitative and quantitative data, including field observations, semi-structured interviews, and questionnaire surveys. Besides, this research also leverages open geospatial data sources to glean relevant data for spatial analysis (see details in Chapter 2). During the field observation, special attention was paid to the following aspects: the building environment of the resettlement community, key gathering spaces and public facilities in and near the resettlement community, potential spots for carrying out interviews and surveys, daily activities of the local residents, and the surrounding environment. Data collected were in the forms of photos, fieldwork notes, audio and video, and served two primary purposes: 1) providing background information for carrying out interviews and surveys and 2) being used as qualitative data for the research. In July 2021, semi-structured interviews were performed with two groups of key informants: experts and local villagers. The former refers to those such as urban scholars, policymakers, planners, developers, and village cadres; the latter alludes to adult landless villagers

(aged 18 years and older). The semi-structured interview was used to gain an in-depth understanding of how experts and resettled villagers perceive and understand resettlement projects. The semi-structured interview involves thematic questions and flexible and informal conversations between the researcher and interviewees, allowing new and unexpected themes to arise (Silva et al., 2015). In addition to interviews, large-scale questionnaire surveys were performed in September 2021. Based on expert inputs and previous literature, the questionnaire explores resettled villagers' general demographic information and their perception of resettlement from economic, social, spatial, and political perspectives (see the questionnaire in Chapter 3). Overall, 15 valid interview samples (3 from experts and 12 from local residents) and 168 survey samples were collected.

In the third stage, various techniques and analytical methods were employed to extract useful information from the fieldwork data. Specifically, spatial analytical approaches were applied for quantitative spatial analysis (see details in Chapter 2). SPSS was used for statistical analysis, such as descriptive statistics, principal component analysis, Chi-Square test, and Analysis of Variance (ANOVA) (see details in Chapter 3); Nvivo 11 was used for thematic analysis (see details in Chapter 4). Although the methodology design has been proven effective and generated valuable and insightful data for this research, there are limitations and issues that warrant further attention, such as the small sample size of the interview and questionnaire, the bias in variable selection, and constraints due to COVID-19 regulations (discussed in Section 5.4).

1.7 Structure of Dissertation

This dissertation follows an article-based format, where three published articles are incorporated (Figure 1.1). Chapter 1 introduces the research background, especially on the evolution of resettlement studies in the international and Chinese contexts, the particularities of resettlement studies in China, and the recent academic and policy call for inclusive resettlement. It further offers a conceptual framework for the dissertation, which elaborates on concepts of urbanization through resettlement, space production in resettlement communities, and the right to resettlement as a

condition for inclusive resettlement. Research questions and methodology are also outlined in Chapter 1, followed by a brief introduction to the dissertation's structure.

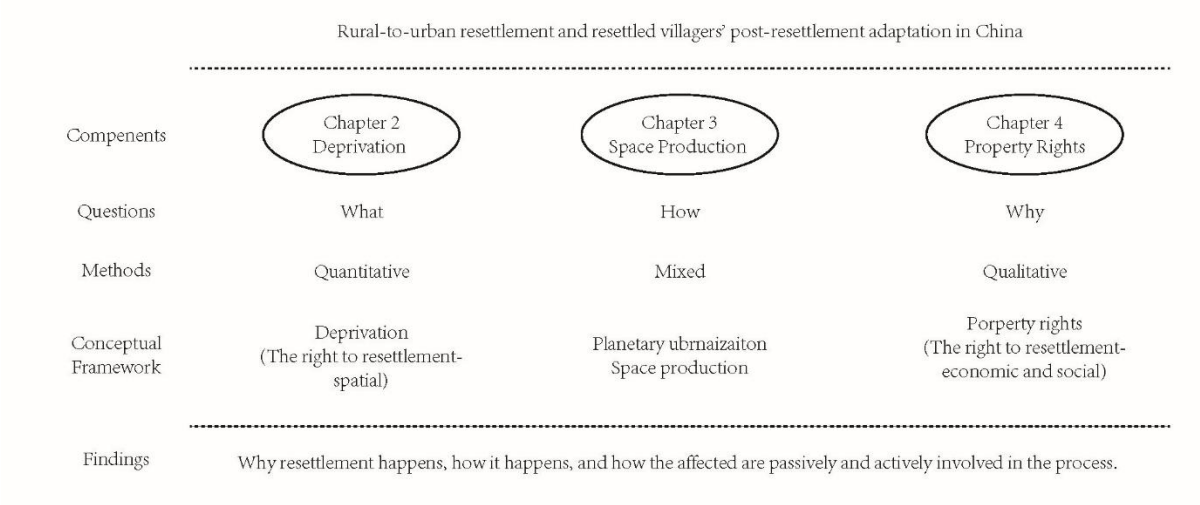

Figure 1.1 A diagram of the dissertation's structure.

Chapter 2 introduces the first article, *Measuring the accessibility deprivation of concentrated resettlement communities in China: An integrated approach of space syntax and multi-criteria decision analysis.* This chapter responds to the locational mismatch identified in section 1.2.2 and explores resettled villagers' right to spatial adapatation (services) in host cities (section 1.3.3). This chapter engages with the what dimension of rural-to-urban resettlement by investigating whether spatial segregation and neighborhood differentiation affect resettlement communities in urban China. This chapter involves the concept of deprivation (Townsend, 1987) and proposes the indices of multiple deprivations (IMDs) for resettlement communities to quantify the spatial characteristics of resettlement communities. This chapter also reveals that various stakeholder groups' perceptions of depreciation significantly influence the results of the post-resettlement evaluation, especially on deprivation. While previous research suggests that resettlement communities may suffer from discrimination, stigmatization, and disamenity effects, this chapter finds that resettlement communities are not spatially segregated compared with other urban residential neighborhoods. The reasons behind the above issues and hindrances to resettled villagers' post-resettlement adaptation needs further analytical lenses.

Chapter 3 presents the second article, *Urbanization through resettlement and the production of space in Hangzhou's concentrated resettlement communities*. This chapter further delves into the how

dimension of resettlement by exploring how space was produced in resettlement communities in Hangzhou within a decade from 2005 to 2017. In responding to the spatial mismatch (section 1.2.2) and building on the concepts of urbanization through resettlement (section 1.3.1) and space production (1.3.2), this chapter proposes a dynamic spatial-temporal conceptual framework to analyze different spaces produced in different resettlement communities. More importantly, following Lefebvre's idea space is a social product, this chapter unpacks how resettled villagers adapt to urban space and urban society through the medium of resettlement communities. The chapter finds that resettlement communities in Hangzhou can be subsumed under three typologies, and the space production processes in resettlement communities reflect the conciliation of conflicts between resettled villagers' socio-spatial demands and technocratic planning. Since the production process is diversified by the changing spatial practice of resettled villagers and the representation of space, one-size for all resettlement planning and policies may be ineffective and thus needs tailored remedies.

Chapter 4 presents the third article, *The complexity of property rights embedded in the rural-to-urban resettlement of China: A case of Hangzhou*. This chapter interrogates why rural-to-urban resettlement may create barriers to inclusive resettlement due to the longstanding property rights issue in China. As Qian (2022) contends, "property rights not only define the relationship between humans and land, but also condition the relationships among people's activities on land" (p.112). This chapter builds upon discussions on inclusive resettlement (section 1.2.3) and the right to resettlement (section 1.3.3) to unpack the institutional barrier – the property rights system in China - to shed light on obstacles for resettled villagers to claim their right to resettlement. This chapter conceptualizes the complexity of property rights embedded in rural-to-urban resettlement as a two-dimensional construct and argues that the complexity reflects China's property rights system in flux. While rural-to-urban resettlement has become a potent tool for the government in addressing the ambiguous issue of property rights, the outcome of this transition may deviate from the ideal path of establishing an equitable property rights system for the resettled. In addition, the chapter further examines how market mechanisms and central planning policies interact with each other in shaping the property rights regime and how this interaction influences resettlement practices in China.

As mentioned, the three articles together offer a step-wise approach to untangling the complexities of rural-to-urban resettlement in China, which adds to our knowledge of how the resettlement process unfolds in China and how resettled villagers are (in)voluntarily involved and interact with such processes. The spatial characteristics, space production, and complexity of property rights of

resettlement communities can have important policy implications for China's sustainable and inclusive urban development. Therefore, Chapter 5 concludes the dissertation with a summary of key findings, contributions to existing literature, policy implications, and limitations and recommendations for future research.

Chapter 2
Measuring the accessibility deprivation of concentrated resettlement communities in China: an integrated approach of space syntax and multi-criteria decision analysis

2.1 Introduction

In 2011, China's urbanization rate reached 50%, which signals new development imperatives in urban areas. During the last decades, urbanization through resettlement (Rogers et al., 2020; C. Yang & Qian, 2022b) has become a potent tool for Chinese governments to sustain the momentum of urban development. The process involves the physical relocation of millions of rural villagers to urban concentrated resettlement communities (Z. Qian, 2019; W. Zhao & Zou, 2017) and villagers' transition from rural to urban identity (J. Chen et al., 2021; Z. Qian, 2017; Z. Wang, 2022). How to accommodate and facilitate long-term sustainable development of the new urban population has raised concern for academics and policymakers alike. The recent New-Type Urbanization Plan (2021-2035) highlights the importance of citizenization (*shimin hua*) of the rural population in cities by providing institutional, economic, and social support. Therefore, a deep understanding of the current socio-economic situation of such a population is vital to China's further sustainable urban development. Recently, there has been an increasing scholarly interest in concentrated resettlement communities (CRCs) in urban China from various perspectives, including space production (C. Yang & Qian, 2022b; L. Zhou & Xiong, 2019), urban governance (Z. Wang, 2022; F. Wu & Zhang, 2022), social acculturation (S. Zhang & Qian, 2020), urban informality (H. Du et al., 2021; W. Zhao & Zou, 2017), and so forth. Notwithstanding the expansive body of literature on CRCs, there is a lack of quantitative research that delves into the spatial characteristics of CRCs (some existing works include M. Zhang et al., 2022). This knowledge lacuna obscures our understanding of rural-to-urban resettlement as to whether such residential communities alleviate or exacerbate inequality in urban areas.

The concept of deprivation that originated in the 1980s UK is a useful analytical lens in investigating social and economic disparity in specific geographic units. According to Townsend (Townsend, 1987, p. 5), deprivation is "a state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family or group

belongs." Deprivation is thus a multidimensional concept that distinguishes itself from poverty (Pacione, 1995). Previous studies have revealed that there is an association between deprivation and lower social class in urban areas, including working classes, immigrants, ethnic minority groups, migrant workers, and urban poverty (Fieldhouse & Tye, 1996; Ley & Smith, 2000; Y. Yuan et al., 2011). While Pacione (1995) argues that the principal cause of deprivation is economic, institutional factors tend to play an indispensable role in deprivation in developing countries (Y. Yuan & Wu, 2014). This is especially the case in China since urban poverty neighbourhoods are largely created because of the economic restructuring from a socialist to a market economy and the longstanding rural-urban institutions. The neigbhorhoods include inner-city dilapidated neighbourhoods, workers' villages, rural migrant enclaves, urban villages, and the most recent resettlement communities (Y. Liu & Wu, 2006; C. Yang & Qian, 2022b). Neighborhood deprivation in the Chinese context has been extensively examined in existing literature (Chang et al., 2022; H. Li & Liu, 2016; C. Wan & Su, 2016), but inadequate attention to rural-to-urban resettlement communities calls for empirical inquiries.

The development of deprivation indices in China has evolved for years (Y. Liu et al., 2019; C. Wan & Su, 2017; Y. Yuan et al., 2011; Y. Yuan & Wu, 2014), and has significantly improved our understanding of deprivation in selected Chinese cities such as Guangzhou, Shenzhen, and Shanghai. While these studies follow the tradition of deprivation research in the western context that relies on household surveys, population census or administrative data, emerging new urban data (Y. Zhou & Long, 2016) offers alternative datasets to capture real-time spatial and socio-economic patterns in urban areas. This research uses point of interest (POI) data as the primary data source for investigating deprivation. Accessibility to services is used as the main indicator of deprivation as it is widely used in prior studies (Cabrera-Barona, 2017; Page et al., 2018; D. M. Smith et al., 2010). Spatial accessibility to services indicates a household's ability to access various services that are considered necessary for day-to-day living. The concept thus captures both material and social aspects of deprivation (Page et al., 2019). It is worth noting that this research focuses on material aspect of deprivation and pays additional attention to the accessibility of physical infrastructure (road network) beyond the accessibility to services, which requires an additional analytical and methodological lens of space syntax. GIS-based Multi-Criteria Decision Analysis (MCDA) and Sensitivity Analysis (SA) are further introduced to facilitate the construction of Indices of Multiple Deprivation (IMDs).

This research aims to contribute to the existing knowledge in the following ways. Theoretically, it investigates how spatial configuration contributes to material deprivation, which supplements the traditional perception of opportunities in urban areas. Methodologically, it proposes an integrated method of constructing IMDs for urban residential communities, especially for concentrated resettlement communities. The IMDs can serve as a useful reference for policymakers to evaluate the location choice of CRCs and policy remedies for successful post-resettlement adaptation in CRCs. Empirically, it adds to our knowledge of the socio-spatial inequality of CRCs and how resettled villagers' neighborhood satisfaction is affected by spatial factors. In doing so, this research addresses the following questions: 1) What is the spatial pattern of accessibility deprivation of CRCs in urban China? 2) How to construct effective IMDs for CRCs and what are the contributing factors of such deprivation? The remaining paper is organized as follows. Section 2 summarizes relevant literature on deprivation and accessibility measurement. Section 3 details the methods and data used in this research. Section 4 presents the main results, which are discussed in section 5. Section 6 concludes with major findings and contributions to the existing literature as well as limitations that need to be addressed in future works.

2.2 Literature Review

2.2.1 Accessibility deprivation and spatial differentiation of urban neighborhoods

Deprivation in urban areas refers to the scarcity of resources in certain areas, which also reflects social exclusion and economic inequality in spatial terms (Kearns et al., 2000). Since its introduction, the concept has spawned an expansive body of literature on social inequality (C. Wan & Su, 2017), particularly regarding inequalities in health outcomes (Cabrera-Barona, 2017; Cabrera-Barona et al., 2015; W. Luo & Wang, 2003), social exclusion, material shortage (Páez et al., 2010; D. M. Smith et al., 2010), living environment degradation (Kearns et al., 2000), and high crime rates (De Courson & Nettle, 2021; Messer et al., 2006). Recent studies have shifted focus to the deprivation of public services and suggest that perceived deprivation may depart significantly from physical condition (Ouyang et al., 2017). That is, residents' perception of deprivation depends upon not only the physical condition but also factors such as their characteristics and expectations. In this sense, measuring deprivation requires an effective scan of physical condition and consideration of relevant stakeholders' perception of deprivation.

It is also worth noting the distinction between material and social forms of deprivation. The material dimension of deprivation refers to the lack of "material goods of modern life or the immediately surrounding material facilities or amenities," while the social dimension alludes to the situation where people "may not have access to ordinary social customs, activities and relationships" (Townsend, 1987, p. 127). While the former manifests in more direct forms and is easily measurable, the latter is more difficult to identify and quantify, which leaves the effects of social deprivation remained to be verified (Bruzzi et al., 2020). Some scholars suggest that material deprivation is the most suitable measure to investigate the relationship between mortality and urbanization (Santana et al., 2015; Testi & Ivaldi, 2009). Others suggest that socially deprived areas are not necessarily materially deprived and vice versa (Bruzzi et al., 2020). In this sense, deprivation is not context-free, and the measurement indicators can include direct and indirect ones: the former "representing conditions or states" and the latter "expressing the victims of those conditions or states" (Ivaldi et al., 2020, p. 158). When measuring the two forms of deprivation, prior studies suggest that material and social deprivation should be kept separate (Bruzzi et al., 2020) since they enable different interpretations of the same urban pattern (Testi & Ivaldi, 2009). What is more problematic is that the measurement indicators of social deprivation are contingent upon cases, which impedes effective results generated from comparison across geographic units. (C. Wan & Su, 2017). Besides, the changing geography of deprivation over time warrants additional attention (Norman, 2010). While material and social forms of deprivation are often explored from the individual perspective, the area-level analytical lens tends to expose the multidimensional nature of deprivation through spatial manifestations, such as geographical access to services (C. Wan & Su, 2017). Considering the multidimensional complexity of deprivation, Abascal et al. (2022)'s timely contribution of the "domains of deprivation framework" offers a holistic and scalable approach to mapping deprived areas, which incorporates material and social indicators from the household-to-city-level. This research thus contributes to the understanding of material deprivation at the area-connect level.

The concept of accessibility plays an essential role in deepening our understanding of social exclusion from the perspective of mobility (Páez et al., 2010), and thus accessibility deprivation is used as a proxy for measuring material deprivation. Accessibility inequality and accessibility deprivation at both individual- and area-based level are instrumental in interpreting inequalities in food services (Páez et al., 2010; D. M. Smith et al., 2010), medical care facilities (Cabrera-Barona et al., 2015; M. Zhao et al., 2018), and others (Kim & Kwan, 2003; F. Yuan et al., 2020; Zeng et al.,

2019). The body of literature on the geography of opportunity highlights the importance of residential location on individuals' life opportunities and outcomes, and a recent call for research towards a geography of neighborhood opportunity points to more complicated and heterogenous features that characterize urban neighborhoods (Lens, 2017). Against this backdrop, spatial accessibility to services has become a trending academic focus, which is nurtured by GIS-based methodological advancements (Neutens et al., 2010; Page et al., 2018; Xing et al., 2018). Quantitative results represented by patterned maps enable better decision-making processes and public policy remedies.

Individuals or neighborhoods that are deprived of multiple resources such as material goods and social opportunities can be identified as multiple deprivations (Noble et al., 2006), which is often measured by indices of multiple deprivations (IMDs), such as the IMDs of UK, Welsh Index of Multiple deprivations, Canadian Index of Multiple Deprivation, and the Multidimensional Deprivation Index of the United States. Such indices are limited by their over-reliance on census variables and thus could not be routinely updated (Page et al., 2019). The issue of data availability has impeded the explanatory power of the traditional indices, but the recent development in both geographic information systems and new urban data (Hao et al., 2015) has offered new potential for constructing object-tailored IMDs. Measuring deprivation thus requires two essential steps: effectively identifying indicators and optimally combining them (Cabrera-Barona et al., 2015). The methodological evolution of constructing IMDs has been well documented in the existing literature (Bell et al., 2007; Cabrera-Barona et al., 2015; Page et al., 2019). This research therefore contributes to the deprivation literature by proposing a new deprivation index for residential communities in urban China based on emerging new urban data.

The spatial differentiation of urban neighborhoods has long been of great research interest to urban scholars. In Western cities, the significant contrast between suburban and inner-city features the residential disparity between different social, economic, and political groups (Galster, 1988; Harris, 1984; Logan, 2013). Theories like spatial mismatch (Kain, 1992, 2004), gentrification (Lees, 2012; Wyly & Hammel, 2004), and residential suburbanization (Champion, 2001; J. Feng et al., 2008) all contribute to our understanding of the drivers and mechanisms of residential spatial differentiation in the western context. While race and ethnicity, income, and gender are key determinants of spatial inequalities in U.S. metropolitan areas (Houston, 2005), the residential disparity in Chinese cities is shaped by socialist legacies and institutional constraints beyond socio-economic stratification, such as the work-unit system and urban-rural hukou dichotomy. Inner-city dilapidated residences,

concentrated industrial areas, and urban villages (F. Wu, 2004) are representative of segregated residential neighborhoods in China and are destinations for low-income rural migrants in most cases. In recent years, concentrated resettlement communities (CRCs) for landless farmers have become an integral part of Chinese urbanism, which has yet received wide scholarly attention (C. Yang & Qian, 2022b; M. Zhang et al., 2022; W. Zhao & Zou, 2017; L. Zhou & Xiong, 2019). Unlike the previous types of residential neighborhoods that have undergone dilapidation, CRCs are state-led productions that are imposed onto landless farmers through (in)voluntary resettlement. Empirical evidence has revealed economic, spatial, social, and political barriers to the resettled people's adaptation to host cities (Z. Qian, 2017, 2019; Y. Wang et al., 2020a). Although CRCs are designed in reference to urban gated communities in hopes of subsuming landless villagers into urban systems, neglecting their economic, social, and spatial demands often results in disadvantageous situations in urban areas. As such, spatial differentiation between CRCs and other urban residential communities measured by IMDs are essential to sustainable development and planning in urban China.

2.2.2 Measuring accessibility and space syntax

Accessibility is an important and extensively used concept in spatial analysis, urban planning, and geography. According to Batty (2009), there are three types of accessibility. *Type 1 accessibility* pertains to locational behavior and is defined as how proximate or near an individual is to opportunities. *Type 2 accessibility* is measured on physical infrastructure (e.g., street network) by calculating the reciprocal of the total distance from one node to all others under the assumption that opportunities are the same everywhere. *Type 3 accessibility* is also measured on physical infrastructure but focuses on links of the graph rather than the nodes. *Type 3 accessibility* offers more abstract measurements and deep theoretical interpretations of the physical-spatial nexus of the system of interest. *This type 3 accessibility* is used in the space syntax approach (Batty, 2004), which has generated a large body of literature that examines how physical space, especially the street network, and human activities are mutually influenced (P. Liu et al., 2018; Omer & Goldblatt, 2016; L. Wu et al., 2015). The theoretical underpinning of space syntax is the notion of "movement economy" (Hillier et al., 1993), which highlights the importance of movements that is presupposed to be determined by physical structure in shaping cities spatially and socio-economically. Over the years, theoretical debates and empirical evidence have gradually reached a consensus that there is a 'circular causality' in the interplay between street network structure and socio-economic activities in cities (Omer & Goldblatt, 2016; C. Yang & Qian, 2022a). Although the space syntax approach has been

criticized for its overemphasis on relation instead of physical geometry and for being too theoretical (Batty, 2010; Jiang and Claramunt, 2002; Ratti, 2004; Turner, 2007), the methodological advancements in the field, especially its integration with Geographic Information System (GIS) tools (Gil et al., 2015; X. Li et al., 2017), have significantly improved its potential and effectiveness in urban modeling. Most importantly, space syntax is a theory that stems from a concern for neighborhood segregation in London and thus provides spatial accounts for social activities, such as crime, social segregation, and anti-social behaviour (van Nes & Yamu, 2021).

In addition to Batty's taxonomy of accessibility, there are two main types of measurement of accessibility: place-based and individual-based (Z. Chen & Yeh, 2019). Place-based measures often adopt the gravity model and use the spatial proximity from opportunities (e.g., services) to home or work locations. The minimum distance or the number of accessible opportunities within a certain criterion (i.e., distance or travel time) is used as the quantitative indicator (Kim & Kwan, 2003). The methodological improvements to the traditional gravity model include the two-step floating catchment area (2SFCA) method (W. Luo & Wang, 2003; Radke & Mu, 2000) and the three-step floating catchment (3SFCA) method (N. Wan et al., 2012). In contrast to the place-based approaches that inadequately address the time or timing of human mobility, the individual-based approach fills this gap by considering both the time availability of individuals to undertake activities and the operation time of opportunities, such as the opening hours of stores (Weber & Kwan, 2002). The biggest challenge to the individual-based methods is data availability since individual activity data are scarce. Data availability also affects the way we understand the socio-economic conditions of urban areas. As mentioned, conventional IMDs rely heavily on census data, which does not offer a real-time representation of socio-economic situations since census data usually have long time intervals every five or ten years. Against this backdrop, crowd-sourcing datasets and big data approaches have equipped urban scholars with diversified and, most importantly, up-to-date data alternatives (Crooks et al., 2015; R. Feick & Roche, 2013).

Previous research indicates that access to services is integral to residents' quality of life as well as survival chances and development opportunities (Zeng et al., 2019). Yet, the accessibility of diverse services may contribute differently to the material deprivation of residential neighborhoods. For example, some consider access to greenery a vital element in mitigating neighborhood deprivation (H. Li & Liu, 2016), whereas others may pay special attention to the transport equity of deprived neighborhoods (Lau, 2013). Therefore, balancing various potential factors of deprivation may be

challenging. Since the primary aim of this study is to construct an index of multiple deprivations, a combination method to incorporate and balance the diverse accessibility indicators is essential. Cabrera-Barona et al. (2015) summarized primary combination approaches: 1) simple additive techniques, 2) weighted methods that can include expert-based weights, and 3) multivariate techniques that use statistical analysis, such as the Principal Component Analysis. Multi-criteria decision analysis (MCDA) has been proved to be an effective analytical tool in creating an index by combining quantitative and qualitative criteria simultaneously (Greene et al., 2011), especially in deprivation research (Cabrera-Barona, 2017; Nuuter et al., 2015). However, as Cabrera-Barona et al. (2015) noted, uncertainty analysis is vital to an effective MCDA model. In this background, this research uses MCDA to develop the accessibility deprivation index for resettlement communities and addresses the uncertainty issue by applying sensitivity analysis.

2.3 Methodology

2.3.1 Data

2.3.1.1 The Xiasha subdistrict of Hangzhou.

This research is informed by the case of Xiasha subdistrict in Hangzhou. Xiasha subdistrict is an educational and industrial hub located about 15 kilometers east of central Hangzhou and over an area of around 140 square kilometers. The case selection is justified by the following reasons. First, Hangzhou has experienced an intensive urban expansion fueled by rural land appropriation in the recent decade, which led to a massive scale of rural-to-urban resettlement. Second, Hangzhou is famous for its initiatives in rural land reform (Z. Qian, 2015a) and the "removing villagers and establishing resettlements" (*checun jianju*) has piloted rural-to-urban resettlement projects nationwide. By 2016, more than 370,000 rural villagers were resettled, and more than 191 concentrated resettlement communities (CRCs) were established (Lang, 2019). Third, the Xiasha subdistrict witnessed the creation of 12 CRCs (N = 14[4]) and the relocation of more than 3600 households and 20,000 rural villagers over a decade from 2005 to 2017, offering a full-cycle lens for investigating CRCs in urban areas.

[4] 2 of the CRCs are divided into two sub-communities.

2.3.1.2 Street network

The street network was created by following the traditional space syntax approach (Al-Sayed, 2018). We first construct an axial map model in reference to street network data retrieved from OpenStreetMap (OSM). The data quality of OSM has been the focus of prior studies (H. Fan et al., 2014; Haklay, 2010). In the Chinese context, Zheng and Zheng (2014) maintain that the completeness and positional accuracy of OSM data has improved steadily in recent years, and the detailed information on some poor areas is particularly instrumental in supplementing datasets offered by commercial and government agencies. Considering the above facts about OSM, samples of street networks from Amap (Chinese MapQuest) were used to manually verify the quality of OSM. Although this study focuses on the Xiasha subdistrict, we created a buffer based on the administrative boundary of the subdistrict to avoid edge effects (Park, 2009; Rashid, 2019). In addition, we followed common conventions in space syntax modeling to use either express highways or rivers as the boundary of our network, which represents "existing natural and/or artificial edge condition[s]" (Rashid, 2019, p. 218). The network of Xiasha subdistrict retrieved from OSM has 27,598 features in total. Since this research concerns accessibility of pedestrian behaviors in public spaces, we filter out some objects that are not accessible to pedestrians or not related to walking, such as those with attributes labelled motorway, trunk, construction, corridor, and unclassified. In addition, metro lines, railways, and light rail tracks are not considered when they are separated from the street network (van Nes & Yamu, 2021). We constructed an axial map based on the filtered street network, which was then converted to a segment map in the QGIS platform. The segment map has 2,931 features, with the longest segment of 8,934.96 meters and a mean of 1,362.98 meters.

2.3.1.3 Point of Interest (POI)

POI data has gained increasing popularity in urban modelling and has become an important vehicle for urban scholars to unpack the spatial meaning of socio-economic activities (J. Li et al., 2019). The POIs are abstract geo-referenced points that represent geospatial entities with their information on names, addresses, operation hours, and others. The Chinese Amap provides map API (https://lbs.amap.com/) for registered developers to access web-based map services such as POI search, geocoding, route planning, IP locating, weather query, real-time traffic, and others. The POIs provided by Amap offer a real-time representation of spatial attributes in urban China and have been used in prior urban studies as an effective indicator (Y. Chen et al., 2020; Zhong et al., 2020). We

collected POIs from the map API using Python web-crawling techniques. While Amap offers 23 functional categories of POIs, we only included those that are germane to this dissertation and are recognized as necessary for day-to-day living, including food, shopping, medical services, park and square, transport services, and schools, which have been proved to be effective factors in understanding urban socio-spatial inequalities/disparities in prior studies. We included convenience stores, supermarkets, and comprehensive markets in shopping services and excluded non-essential shopping services such as shopping plazas, sports stores, and franchise stores, since these are less mentioned by the resettled villagers. As for medical services, only hospitals and health care centers are included. Clinics are excluded as urban populations rarely use them. Park and squares are important recreational services in urban China (J. Zhang et al., 2021; R. Zhang et al., 2021) and are thus considered. Bus and subway stations are selected to represent the public transportation system. We only consider kindergartens and elementary and secondary schools since such educational resources are influential factors in urban residential communities (L. Hu et al., 2020; Wen et al., 2017). It is worth noting that we identify all residential communities from POIs data (N=76) and thus exclude commercial condos and apartments as they have different property rights arrangements to urban residential communities[5]. The resettlement communities range in size of land coverage from around 7,500 m^2 to 250,000 m^2. Most communities have many high-rise buildings, and only 2 communities have 2-3 high-rise buildings (see satellite images in the supplemental material).

2.3.1.4 Other data

This research also collected housing price data of the residential communities. The data are mainly gleaned from the second-hand housing transaction supervision platform of Hangzhou Housing Security and Real Estate Administration, with part of the data retrieved from the historical transaction data disclosed by Anjuke (http://hangzhou.anjuke.com), one of Chinese largest real estate websites. Housing prices vary significantly across locations as the latter determines the opportunity to access urban facilities and public resources. In China, urban facilities play a critical role in housing prices compared with that in developed countries (F. Yuan et al., 2020). We use the data to investigate whether there are differences between urban residential communities and CRCs regarding housing prices and whether such differences are associated with deprivation.

[5]Commercial condos/apartments: owners have 40-year land use rights for commercial purposes. Residential buildings: owners have 70-year land use rights for residential purposes.

Although this research focuses more on the quantitative interpretation of accessibility deprivation of CRCs, we also conducted interviews and questionnaire surveys with local residents to facilitate our understanding of the quantitative results. In 2021, a few semi-structured interviews were conducted with two groups: experts (N = 3) and local resettled villagers (N = 12). The three experts include a professor at a local university with expertise in rural-to-urban resettlement, a planner at a local planning institution who was involved in resettlement project planning, and a policy maker who works at the planning department of the subdistrict-level government. Interviews with experts were conducted in-person and online, with each session lasted for 30-40 mins. While this research focuses on the accessibility deprivation of resettled villagers and CRCs, the interview data facilitate the interpretation of quantitative findings, especially regarding resettled villagers' perceived deprivation and neighborhood satisfaction.

2.3.2 Methods

This research aims to establish suitable and effective IMDs for concentrated resettlement communities (CRCs). Unlike many previous studies that focus primarily on type 1 accessibility, this research considers both the location of services and the street network in measuring accessibility. Our analytical framework consists of the following main stages (Figure 2.1). First, based on space syntax approaches, we analyzed the accessibility of the physical network. Second, we calculated accessibility to different services (criteria) by the two-step floating catchment area method. Using analytical hierarchy procedure (AHP) and multi-criteria decision analysis (MCDA), we construct three IMDs that incorporate both physical accessibility and accessibility to services for urban residential communities (See Table 2.1). We then performed the T-test to see whether there are significant differences in accessibility deprivation between urban residential communities (URCs) and CRCs, as well as variances among CRCs. Finally, we performed sensitivity analysis (SA) to address the uncertainties embedded in the creation of IMDs through MCDA. SA serves two purposes: 1) to refine

the MCDA model through adjusting criteria weights, and 2) to capture how different criteria contribute to the differences between CRCs and URCs.

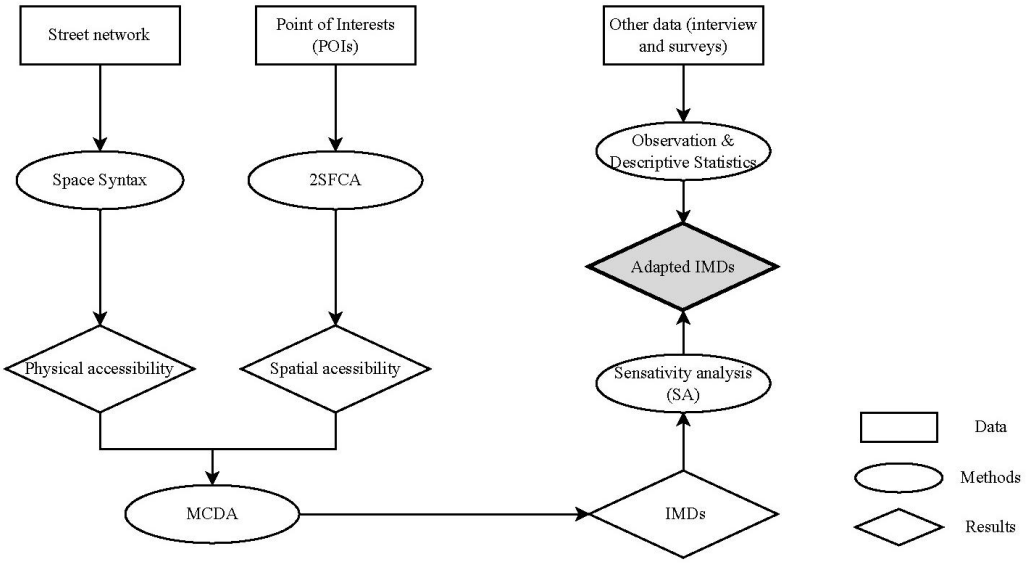

Figure 2.1 A diagram of the methodological workflow**.**

2.3.2.1 Space syntax approach

The space syntax approach focuses on the typological relations among various spaces. On the city scale, the urban street network can be abstracted to a topological graph, where the vertices represent the axial lines, and the lines represent the connections between two axial lines. The approach investigates the configuration of the built environment through axial analysis (Turner et al., 2005), angular segment analysis (Turner, 2007a), and the most recent normalized angular analysis (Hillier et al., 2012). It is believed that the normalized angular choice (NACH) is the most powerful tool for measuring accessibility (see formulas in Al-Sayed, 2018, pp. 113–117). Recent methodological advancements to the space syntax approach have seen successful integration of space syntax into GIS (Gil et al., 2015; X. Li et al., 2017; C. Yang & Qian, 2022a). The Space Syntax Toolkit (https://spacesyntax.com/project/space-syntax-toolkit/) is a handy open-source plugin in QGIS that can facilitate further spatial analysis of the outputs from space syntax analysis. The analysis generates a segment map where each segment is a line feature with NACH as an attribute. The NACH value is then joined to each residential community (point feature) through spatial join with a specified radius

of “200m” and merge rule as “mean.” Since residential communities are polygon, in reality, we hope to include all possible roads that connect the communities. 200m is the largest distance between a point of the residential community and its nearest road. The new attribute in the target layer is labelled PACC (physical accessibility).

2.3.2.2 The two-step floating catchment area method of accessibility measurement

The two-step floating catchment area method (2SFCA) was created by Luo and Wang (2003) to measure healthcare accessibility. Since then, the method has undergone continuous enhancements (X. Chen & Jia, 2019; Page et al., 2019; F. Wang, 2021; Xing et al., 2018). Although we acknowledge there are many enhanced methods, this dissertation uses the original 2SFCA method to consider methodological simplicity as this research focuses more on the MCDA approach. The method has two computational steps. First, a time- or distance-based catchment is constructed based on a user-specified threshold for each service point. Then, a supply-to-demand or provider-to-population ratio is calculated within the catchment. Second, a similar catchment is constructed for each demand centre (residential communities). The final spatial accessibility score is the sum of all supply-to-demand ratios that are within the catchment. Thus, the threshold is important and of the particular significance of the method. In sum, the generalized is a gravity model that can be formulated as follows:

$$A_i = \sum_{j=1}^{n} \frac{S_j d_{ij}^{-\beta}}{\sum_{k=1}^{m} D_k d_{kj}^{-\beta}} \tag{2.1}$$

Where A_i is the accessibility at location *i*. n and m are the total numbers of supply (services) and demand locations (residential communities), respectively. D_k is the population at location k, S_j is the number of services at location *j*, and d_{ij} (d_{kj}) are the distance or travel time between two locations. β is the friction-of-distance coefficient. While previous research focuses on how to determine the coefficient, this research follows Luo and Whippo (2012) ‘s implementation of the 2SFCA method in a GIS environment where the coefficient is set as 1.

Since this research is interested in the accessibility deprivation of residential communities regarding the accessibility to services, we regard the ability to walk to services of daily needs as an essential factor in neighborhood deprivation. While it is acknowledged that accessibility can be measured upon different travel modalities, this research pays special attention to walking accessibility for the following considerations. First, walkability and active transportation in urban spaces has been

considered as important indicators of urban sustainability (Moreno et al., 2021). The walking accessibility measurement can shed light on urban sustainability regarding Chinese residential neighborhoods. Second, previous studies have proved the effectiveness and significance of walking accessibility in urban studies (L. Yang et al., 2018; Zeng et al., 2019). Third, and most importantly, according to our survey, around 60% of resettled villagers regard walking as their primary form of traveling methods in their daily life, followed by public transportation (20%), and personal vehicles (20%). The walking distance of 400m, which is around 5-minutes walk, has been proved to be effective in simulating residents' walking pattern (Foda & Osman, 2010). In addition, we use a multiplier of 1.3 to avoid the error of using Euclidian distance, as previous research shows that the shortest path distance is around 1.2 to 1.4 times the straight-line distance (Zeng et al., 2019). As such, the search radius in this research is 530m. After performing the 2SFCA measurement to all criteria, results are joined to the targeted layer of residential communities.

2.3.2.3 Multiple-criteria decision analysis and sensitivity analysis

In deprivation literature, the term "domain" refers to different aspects of socio-economic life from which variables are selected, reflecting various deprivation dimensions (Y. Yuan & Wu, 2014). However, we prefer criteria to domains in this research as each domain contributes to multidimensional deprivation, and the use of criteria is consistent with the methods used. In this research, multiple-criteria decision analysis (MCDA) refers to GIS-based MCDA approaches that have gained momentum since the early 1990s (Malczewski, 2006). The primary steps of performing MCDA include problem identification, criteria (factors) list establishment, normalization (Eq 2), weight assignment (Eq 3-8), criteria aggregation (Eq 9), and result verification. Unlike the traditional application of MCDA that aims to rank different alternatives for decision-making (R. D. Feick & Hall, 2001), this research leverage its capacity to create an index for measuring deprivation (Cabrera-Barona et al., 2015). Different criteria were assigned with weights generated from the analytical hierarch procedure (AHP). The key step in the AHP is to create a pairwise comparison matrix based on the Saaty Scale (Saaty, 1989), where all criteria are compared with each other. We focused on two groups of decision-makers: experts and local residents, and used their judgment in the pairwise comparison. Table 2.1 shows the weights for the criteria based on three pairwise comparison matrices. Two expert interviewees and one villager interviewee are asked to pairwise compare all the criteria, and their decision matrices are then translated into weights (see their decision matrices in supplemental materials). For example, a expert consider physical accessibility (PACC) is extremely

important and thus assign it a rating of 7.0 to other criteria. The expert believe SHOP is of strong importance (rating 5.0) when compared to FOOD and is of equal importance (rating 1.0) when compared to MED. It is worth noting that we used the single decision-maker method in this research, the results may suffer from issues such as the hesitancy and inconsistencies of decision makers. Although the group decision making methods such as group AHP can be more effective and reflective of real-world situations (Amenta et al., 2021; Coffey & Claudio, 2021), it is beyond the scope of this research but should be noted in future work. The AHP can be performed either through Excel by creating formulas or using a ready-to-use tool like AHP calculator (https://bpmsg.com/ahp/ahp-calc.php).

Table 2.1 The weights for the criteria based on three pair-wise comparison matrices

	PACC	***FOOD***	***SHOP***	***MED***	***PARK***	***TRANS***	***SCH***
AHP_1[a]	*0.511*	*0.025*	*0.104*	*0.084*	*0.044*	*0.184*	*0.048*
AHP_2[b]	*0.118*	*0.03*	*0.442*	*0.079*	*0.057*	*0.231*	*0.041*
AHP_3[c]	*0.037*	*0.045*	*0.132*	*0.132*	*0.088*	*0.25*	*0.317*

Notes. Criteria: physical accessibility (PACC), food services (FOOD), shopping supermarket (SHOP_1), comprehensive market (SHOP_2), Medical (MED), Park and squares (PARK), transport (TRANS), School (SCH). a. Based on the interview with professor interviewer, who believes physical accessibility determines socio-economic activities. b. Based on the interview with planner expert, who considers shopping services is the most important. c. Based on the interview with the villager representative, who maintains that school and transportation are decisive factors, and his knowledge about physical accessibility is limited. The number of comparisons between criteria is 21, and the Consistency Ratio (CR) for AHP 1 to 3 are 8.8%, 8.3%, and 9.6%, respectively.

In the normalization stage, we used the linear form of the global value function (see equation 1) to facilitate the transformation of raw data into comparable units:

$$\mathrm{v}(a_{ik}) = \frac{a_{ik} - min\{a_{ik}\}}{max\{a_{ik}\} - min\{a_{ik}\}} \tag{2.2}$$

where a_{ik} is the k-th criterion (factor) of the i-th alternative (segment), and the max $max\{a_{ik}\}$ and $min\{a_{ik}\}$ represents the maximum and minimum of the criterion values.

Through the AHP process, the weights of different criteria (w_i) are calculated and they add up to one:

$$\sum_{i=1}^{n} w_i = 1 \tag{2.3}$$

When determining and assigning weights of criteria/factors, the method assumes that decision-maker could pairwise compare every two of the n independent alternatives (A1, A2, A3, …, An) according to Saaty Scale (Saaty, 1989) that rating with values from 1 to 9. The results can be represented as a reciprocal matrix:

$$\mathrm{A} = \left[a_{ij}\right]_{n\times n}, i, j = 1, 2, 3, \dots, n \tag{2.4}$$

and in matrix A,

$$a_{ij} = 1/a_{ji} \tag{2.5}$$

the matrix A is normalized as a matrix B subsequently,

$$\mathrm{B} = \left[b_{ij}\right]_{n\times n}, i, j = 1, 2, 3, \dots, n \tag{2.6}$$

where elements b_{ij} :

$$b_{ij} = a_{ij} \,/\, \sum_{i=1}^{n} a_{ij}\,, i, j, = 1, 2, 3, \dots, n \tag{2.7}$$

the weight of each criterion/factors is calculated as:

$$w_i = \frac{\sum_{j=1}^{n} b_{ij}}{\sum_{i=1}^{n} \sum_{j=1}^{n} b_{ij}}, \mathrm{I, j} = 1, 2, 3, \dots, \mathrm{n} \tag{2.8}$$

It is critical to evaluate the consistency of the obtained weight values based on the consistency ratio (CR). Generally, the CR is a measurement indicating whether the matrix rations are randomly calculated, and the CR value under 10% is considered to be acceptable. However, as recommended by prior research, it is reasonable to allow for some inconsistency under the condition that users are careful and confident in accepting the weights matrix that could accurately reflect the users' preferences.

Regarding the combination rules of the fifth step, the Weighted Linear Combination (WLC) was selected to conduct the summation of weighted criteria:

$$\mathrm{V}(A_i) = \sum_{i=1}^{n} w_i a_i \tag{2.9}$$

Where $\mathrm{V}(A_i)$ is the total value of the i-th alternative (the value predicting pedestrian volume); the w_i is the weight of the i-th factor and the a_i is the value of the i-th factor.

Sensitivity analysis (SA) is vital to improving the validity of MCDA models (Saltelli & Annoni, 2010). SA focuses on how the uncertainty in the model input factors affects the uncertainty in the output, and the major interest may not be the model output but the sensitivity of results through changing criteria or weights. It thus enables a further inquiry into criteria selection and weight assignment. The potential issue with GIS-MCDA arises from its inherent uncertainties, including 1) semantic fuzziness or imprecision when describing spatial objects and 2) decision-makers' bias (Malczewski & Rinner, 2015). The SA helps to adjust the weights of different criteria to reach an optimal weights combination by examining how the changes in inputs impact outputs (Crosetto et al., 2000). Conventional sensitivity analysis can be categorized into two types, including the local and global approaches. The former focuses on the impact of a specified input parameter, while the latter investigates all the input factors as a whole, allowing them to change systematically (Malczewski & Rinner, 2015). A number of different SA methods have been invented to tackle both local and global issues, among which the One-At-a-Time (OAT) local method (Y. Chen et al., 2010) and variance-based method (Feizizadeh et al., 2014) are the most widely used ones. This research is interested in identifying the single factor that potentially impacts the model's output, so the OAT sensitivity method was adopted. The number of evaluation runs is calculated according to the alteration in percent increments to its corresponding range (Eq 10). At the same time, the weights of other criteria are changed proportionally, considering that all the weights should add up to one (Eq 3). The number of simulations is defined as:

$$\mathrm{Runs} = \sum_{i=1}^{n} r_i \tag{2.10}$$

where n is the number of criteria, and r_i equals the number of IPC (10% in our case) within the RPC (from 0 to 1) for criteria i.

For each main criteria weight that changes its value from 0 to 1 at 10% increments, the adjusted weights for other criteria is specified as:

$$w_{k^*} = \frac{(1 - w_c)\, w_k}{\sum_{k \neq c} w_k} \quad (2.11)$$

where w_{k^*} is the adjusted k-th criteria weight, w_c is the main changing criteria weight, w_k is the k-th criteria weight.

Therefore, the WLC function (equation 12) is translated into:

$$\mathrm{V}(A_i, w_c) = \; w_c v(a_{ic}) + \sum_{k \neq c} w_{k^*}\, v(a_{ik}) \quad (2.12)$$

where $v(a_{it})$ and $v(a_{ik})$ are the values for c-th and k-th criterion, c ≠ k.

With the variation of the weights of the main changing criterion, the result of simulations is recorded in a summary table.

2.4 Results

2.4.1 Physical accessibility of the network

Figure 2.2 shows the results of space syntax analysis using the NACH as the proxy of physical accessibility. We used the traditional symbology of space syntax diagrams, where red and blue indicate high and low values, respectively. The color pattern is instrumental for a qualitative capture of cities' dual structure – foreground and background (Hillier, 2014, 2016). The former outlines the urban structure shaped mainly by macro-economic activities, whereas the latter captures the urban form shaped by local socio-cultural activities. The grey lines represent the road network. Residential communities, including urban residential communities (URCs) and concentrated resettlement communities (CRCs), form five clusters (highlighted in red dashed circles in Figure 2.2_a). At the global scale (Figure 2.2_a), the network structure is featured by three long vertical red polylines. The two left clusters are located in between these lines, while the right two are not closely linked to these structural lines. At the meso-scale (Figure 2.2_b), three clusters are identified, which reveal the most accessible areas at a 1200m level (15mins walk). Two additional clusters are identified at the micro-scale or local scale (Figure 2.2_c), indicating the most livable local neighborhoods in the subdistrict.

We also performed spatial autocorrelation analysis to further investigate the distribution pattern of residential communities through the lens of physical accessibility (NACHr530m as the indicator). The results suggest that residential communities demonstrate clustered patterns (Global Moran's I: z-score,

7.194, p-value, 0.000). Figure 2.2_d shows the clusters and outliers based on Anselin Local Moran's I. Except for the high-high clusters, it highlights a low-low cluster to the bottom-right of the map. Besides, it also reveals that most CRCs' distribution is not significantly affected by physical accessibility (this will be discussed in depth in later sections).

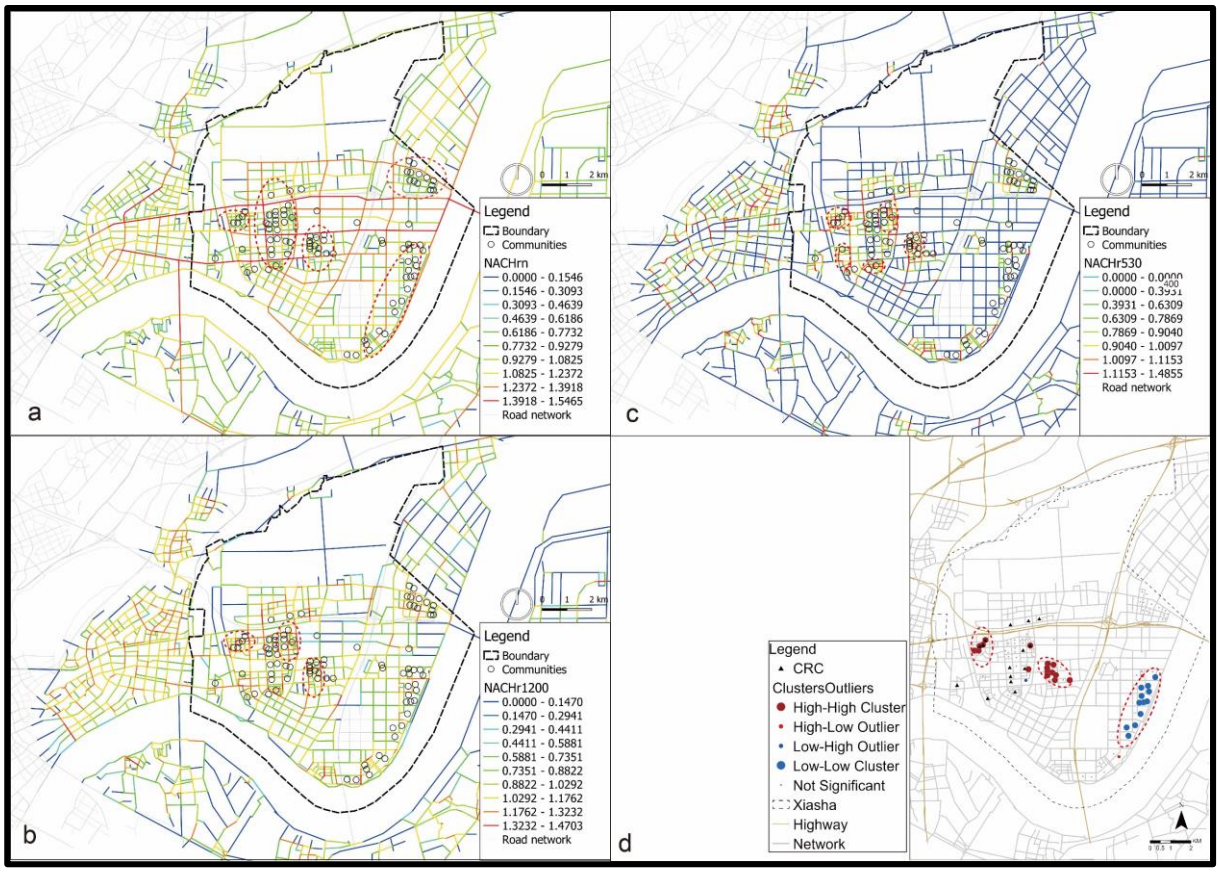

Figure 2.2 Accessibility of physical network and spatial autocorrelation among residential communities regarding physical accessibility.

Notes. The normalized angular choice (NACH) measures the accessibility. CRC: concentrated resettlement communities. a. global scale with searching radius at n. b. meso-scale with search radius at 1200m. c. local scale with searching radius at 530m. The dashed oval indicates the spatial cluster.

2.4.2 Accessibility to services and the accessibility deprivation of CRCs

Table 2.2 shows the descriptive statistics of the results of the two-step floating catchment area method (2SFCA). The results suggest that food services are the most accessible compared with other types of services, and medical and park services are among the least accessible. This finding is consistent with existing research that food accessibility is not a primary issue in urban China (H. Wang, Liu, et al.,

2017). Figure 2.3 shows the accessibility to various services for residential communities based on 2SFCA and multiple-criteria decision analysis (MCDA). While different deprived areas (highlighted in blue dashed oval) are identified under the rubric of different services, some areas are deprived of multiple services. For example, the map's bottom-right area (the low-low cluster identified in the previous section) has a low accessibility index in PACC, FOOD, MED, and PARK. As mentioned, since a single factor may not be effective in unpacking the deprivation of residential communities, MCDA provides an integrated measurement for accessibility deprivation, which takes into consideration of stakeholders' inputs. While MCDA_1, MCDA_2, and MCDA_3 in Figure 2.3 each present a map of deprivation for residential communities, they are indeed representations of perceived deprivation. Both the accessibility to services based on physical network structured and perceived accessibility based on stakeholder's weights can enhance our understanding of the deprivation of residential communities, but it is still unclear whether CRCs are more deprived than URCs.

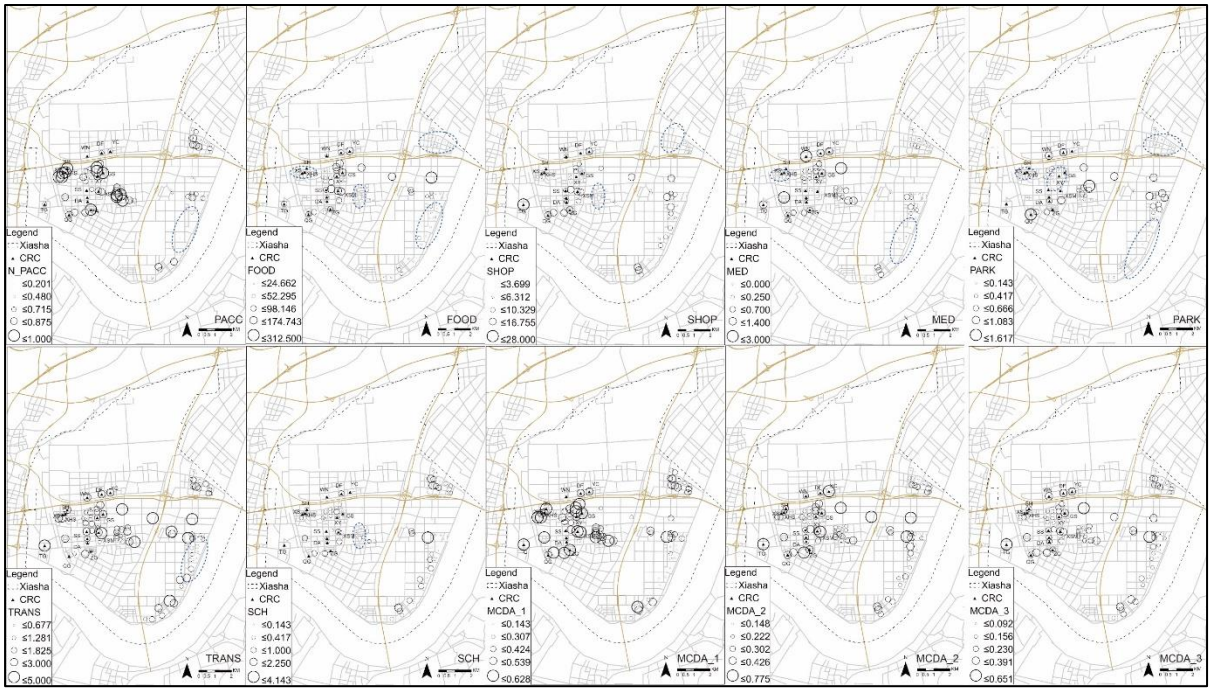

Figure 2.3 The spatial pattern of accessibility to different services and the results of multi-criteria decision analysis (MCDA).
Notes. N_PACC indicates the normalized physical accessibility. The name of 14 concentrated resettlement communities (CRCs) are labelled with text: Gaosha (GS), Zhige (ZG), Qige (QG), Songhe (SH), Xinyuan (XY), Shangsha (SS), Dongan (DA), Wannan (WN), Touge (TG), Songhe Xinfu (SHX), Xiasha (XS), Xiasha Mingdu (XSM), Yuancheng (YC), and Dongfang (DF). Dashed oval captures some of the most deprived areas.

Table 2.2 The descriptive statistics of the results of 2SFCA

Services	Mean	Median	SD	Min	Max
PACC (Physical accessibility)	0.562	0.617	0.362	0	1.068
FOOD	42.390	22.063	46.309	3	312.5
SHOP	6.244	5.079	4.385	0.939	28
MED (medical services)	0.267	0.111	0.481	0	3
PARK	0.244	0	0.376	0	1.617
TRANS (transportation services)	1.700	1.477	1.067	0	5
SCH (school)	0.3444	0.225	0.542	0	4.143

Figure 2.4 illustrates the statistical differences between the URC (code:0) and CRC (code:1) in box plot format. Overall, CRCs have a higher accessibility index under all criteria except for N_SCH. Such differences are statistically significant in the criteria of N_FOOD (0.117 vs. 0.228), N_SHOP (0.201 vs. 0.333), N_MED (0.068 vs. 0.189), MCDA_1 (0.360 vs. 0.455), MCDA_2 (0.245 vs. 0.341) according to the t-test (Table 2.3). The result is counterintuitive at first glance since such services are more accessible to CRCs than URCs. However, the significant difference in housing price – the price mean for CRCs is 27,295 RMB/m^2 versus that for URCs is 32,074 RMB/m^2 – suggests the potential socio-spatial segregation among CRCs and URCs and the disamenity effect of CRCs (M. Zhang et al., 2022).

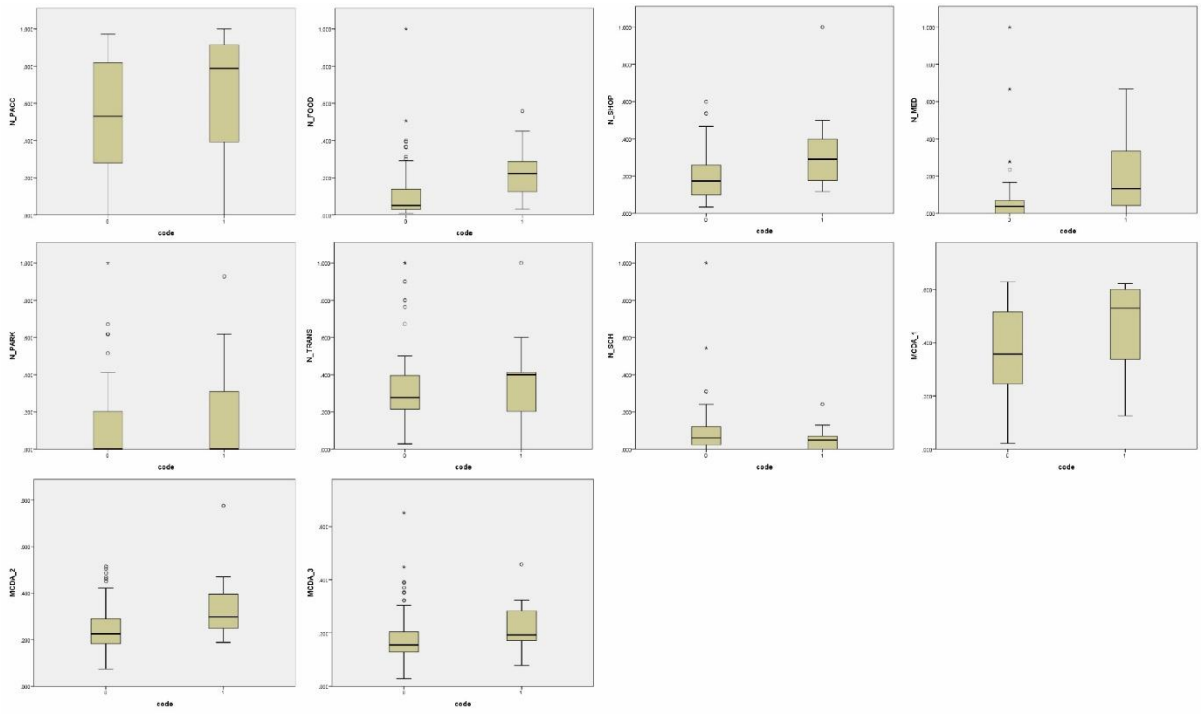

Figure 2.4 The statistical difference between urban residential communities (URCs) and concentrated resettlement communities (CRCs).

Notes. code 0 and code 1 denote URCs and CRCs respectively. Symbol o indicates outliers within Q1-1.5IQR and Q3+1.5IQR, while * indicates outliers within Q1-3IQR and Q3+3IQR.

Table 2.3 The results of T-test between urban residential communities and concentrated resettlement communities

Criteria	Urban residential community (URC, N=76)		Concentrated resettlement community (CRC, N=14)		T-test
	M	**SD**	**M**	**SD**	
N_PACC (Physical accessibility)	0.506	0.333	0.628	0.360	1.276
N_FOOD	0.117	0.153	0.228	0.153	2.572*
N_SHOP	0.201	0.132	0.333	0.220	3.130*
N_MED (medical services)	0.068	0.145	0.189	0.197	2.767*
N_PARK	0.141	0.216	0.199	0.302	0.876
N_TRAS (transportation services)	0.335	0.209	0.366	0.237	0.516
N_SCH (school)	0.089	0.140	0.053	0.065	-0.950
MCDA_1	0.360	0.175	0.455	0.179	1.926*
MCDA_2	0.245	0.101	0.341	0.145	3.105*
MCDA_3	0.184	0.100	0.228	0.094	1.583
Price	32073.84	6160.011	27295.87	7732.135	-2.625*

Notes. M, mean, SD, stand deviation, * $p<0.05$, 2-tailed. The data of URC were collected from POI data (see section 2.3.1.3).

2.4.3 The accessibility deprivation among concentrated resettlement communities

In addition to the differences between CRCs and URCs regarding accessibility deprivation, we also investigate the variances among CRCs. Figure 2.5 shows the variances of deprivation indices among the 14 CRCs, and their locations are labelled in Figure 2.3 for spatial reference. Since this research is interested in the deprived communities, we only report the results of CRCs with the lowest index. For N_PACC, the lowest group includes SS (0), DA_2 (0.181), and DA_1 (0.218). For N_FOOD, SH (0.033), SHX (0.036), and XS (0.046) are among the lowest, and they are clustered to the west part of the subdistrict. For N_SHOP, SH (0.117), XY (0.154), SHX (0.173), and XS (0.179) are identified. As for N_MED, no services are available for SH (0), SHX (0), XS (0), and XSM (0). Park services are another scarce resource as the index for GS, SH, XY, SS, TG, SHX, XS, XSM, YC are all zero.

ZG (0.2), QG (0.1), SHX (0), and XS (0.2) are relatively deprived in terms of transport services. The school is inaccessible to almost all CRCs (ranging from 0 to 0.08) except for XSM (0.129) and DF (0.298). The results of MCDA identify the most deprived communities are SS (MCDA_1: 0.126), SHX (MCDA_2: 0.188), and SHX (MCDA_3: 0.078). According to the frequency with which a CRC is classified as deprived, SHX is the most deprived CRC. SHX is not classified as deprived based on

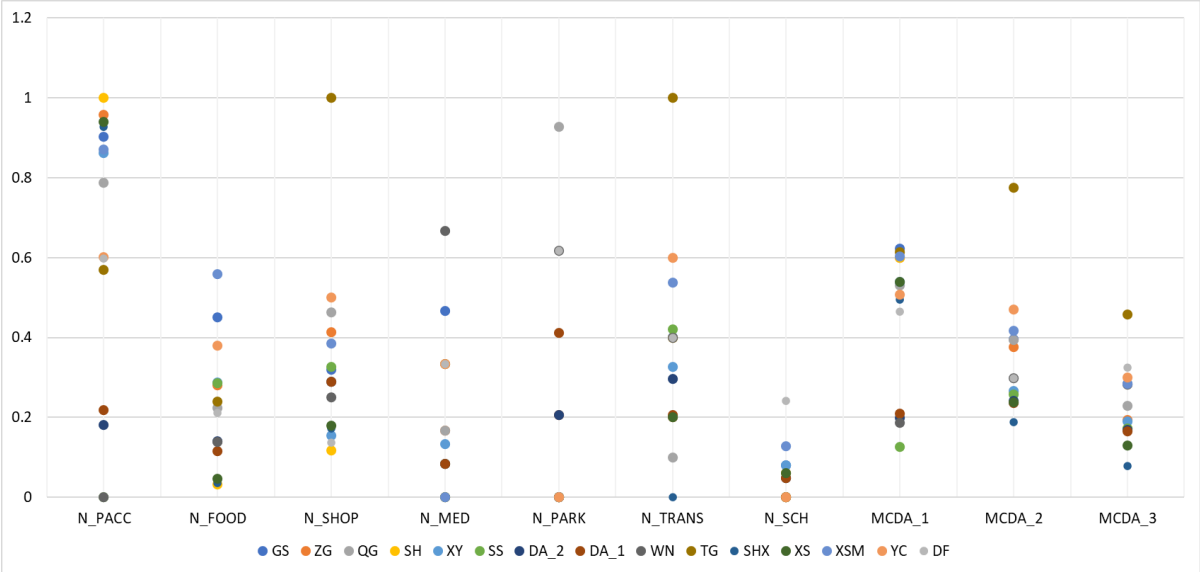

Figure 2.5 The variances of deprivation index among the 14 concentrated resettlement communities.

Notes. The prefix N_ indicates the normalized value of each criterion. For example, N_PACC indicates the normalized value of physical accessibility. The name of 14 concentrated resettlement communities (CRCs) are labelled with text: Gaosha (GS), Zhige (ZG), Qige (QG), Songhe (SH), Xinyuan (XY), Shangsha (SS), Dongan (DA), Wannan (WN), Touge (TG), Songhe Xinfu (SHX), Xiasha (XS), Xiasha Mingdu (XSM), Yuancheng (YC), and Dongfang (DF).

N_PACC and MCDA_1.

2.4.4 SA results

It is evident from previous results that deprivation is a relative concept and is contingent upon various definitions and perceptions. Although the MCDA allows for a systematic and full-scale evaluation of the deprivation of CRCs, it involves uncertainties, such as the fuzziness associated with the semantic meaning of descriptions and decision-makers' bias toward spatial objects (Malczewski & Rinner, 2015). In our cases, the uncertainty problem stems from different groups' perceptions of deprivation, leading to different weight combinations. It is therefore essential to introduce SA to tackle such uncertainties and, most importantly, to gain a deep understanding of how each criterion contributes to

the final results, the deprivation indices, in this research. The weights combination based on the expert's inputs is selected as the reference (base run), since MCDA_1 fails to capture the most deprived CRC (Figure 2.3) and MCDA_3 does not report significant differences among CRCs and URCs (Table 2.3). The weights of the criteria for the base run are: PACC (0.118), FOOD (0.03), SHOP (0.442), MED (0.079), PARK (0.057), TRANS (0.231), and SCH (0.041). In addition to this base run, another 42 simulations were performed with an RPC of [0,1] and IPC of 20%. Previous applications of SA focus on how the change of criteria/weights affects the output, such as the changes in spatial patterns or the ranking of different alternatives (Y. Chen et al., 2010; C. Yang & Qian, 2022a), whereas this research is more concerned about how different criteria contributes to the differences between CRCs and URCs.

Table 2.4 The summary table of the T-tests statistics of all 42 runs of sensitivity analysis

Changing criterion with weight	Urban residential community (URC, N=76)		Concentrated resettlement community (CRC, N=14)		T-test
	M	SD	M	SD	
PACC_0	0.212	0.114	0.303	0.166	2.607*
PACC_2	0.270	0.104	0.368	0.138	3.115**
PACC_4	0.329	0.140	0.432	0.158	2.554*
PACC_6	0.388	0.198	0.497	0.213	1.931
PACC_8	0.447	0.264	0.563	0.283	1.531
PACC_10	0.506	0.333	0.628	0.359	1.276
FOOD_0	0.250	0.102	0.344	0.146	3.016**
FOOD_2	0.223	0.103	0.321	0.133	3.167**
FOOD_4	0.197	0.110	0.298	0.127	3.153**
FOOD_6	0.170	0.121	0.274	0.128	3.007**
FOOD_8	0.143	0.136	0.251	0.137	2.796**
FOOD_10	0.117	0.153	0.228	0.153	2.572*
SHOP_0	0.283	0.125	0.347	0.116	1.854
SHOP_2	0.266	0.110	0.344	0.123	2.468*
SHOP_4	0.249	0.102	0.342	0.140	2.972**

SHOP_6	0.234	0.104	0.339	0.163	3.225**
SHOP_8	0.217	0.114	0.336	0.190	3.242**
SHOP_10	0.201	0.131	0.333	0.219	3.130**
MED_0	0.262	0.107	0.354	0.151	2.838**
MED_2	0.223	0.097	0.321	0.137	3.322**
MED_4	0.185	0.097	0.288	0.135	3.533**
MED_6	0.146	0.106	0.256	0.147	2.748*
MED_8	0.107	0.123	0.222	0.169	2.515*
MED_10	0.068	0.145	0.189	0.197	2.253*
PARK_0	0.253	0.105	0.349	0.156	2.981**
PARK_2	0.230	0.100	0.312	0.126	3.000**
PARK_4	0.208	0.114	0.289	0.136	2.427*
PARK_6	0.186	0.142	0.259	0.179	1.742
PARK_8	0.163	0.177	0.229	0.237	1.229
PARK_10	0.141	0.216	0.199	0.302	0.876
TRANS_0	0.220	0.094	0.333	0.136	3.928**
TRANS_2	0.243	0.100	0.340	0.143	3.189**
TRANS_4	0.266	0.118	0.346	0.157	2.277*
TRANS_6	0.288	0.145	0.353	0.179	1.504
TRANS_8	0.312	0.176	0.359	0.206	0.931
TRANS_10	0.334	0.209	0.366	0.236	0.516
SCH_0	0.253	0.104	0.353	0.151	3.139**
SCH_2	0.220	0.097	0.294	0.118	2.574*
SCH_4	0.187	0.097	0.233	0.087	1.697
SCH_6	0.154	0.106	0.173	0.062	0.669
SCH_8	0.121	0.120	0.114	0.053	-0.253
SCH_10	0.089	0.140	0.053	0.065	-0.950

Notes. _2 means 0.2, _4 means 0.4, and so on. M, mean, SD, stand deviation, * p<0.05, **<0.01, 2-tailed.

The summary table (Table 2.4) lists the T-test statistics between the URC and CRC of all SA runs, which suggest the followings. First, FOOD and MED are the least sensitive criteria since the change in weights has marginal effects on the significance of T-test results. Second, SHOP is the primary determining factor in the MCDA model because the increase in its weight leads to more significant statistical results. Third, PACC, TRANS, and PARK are sensitive criteria as the weight change influences the T-test results, and the turning point lies in the weight changing range from 0.4 to 0.6. Lastly, SCH is the outlier criteria as higher weights lead to results where CRCs have a lower index than URCs. In sum, SA results indicate that SHOP is the most effective criterion in identifying the "deprivation" of CRCs, while FOOD and MED have marginal impacts on the outputs of the MCDA. PACC, TRANS, and PARK could be incorporated into the MCDA model, but their contributing weights should be limited below 0.4. SCH is the criteria that can generate complete opposite results of the MCDA model, and thus should be used with caution and be supplied with additional interpretation.

2.5 Discussion

2.5.1 Material and accessibility deprivation of concentrated resettlement communities

The analyses offer new insights into our research questions. First, there is no strong evidence that CRCs are more deprived than URCs in terms of accessibility to services. Conversely, CRCs are in close proximity to nearly all types of services except for the school. However, the noticeable gap in housing prices implies invisible socio-spatial segregation between the two types of settlement. The disamenity effect (M. Zhang et al., 2022) also corroborates the existence of such inequality in urban China. It is therefore crucial to note that material deprivation may not be the primary concern for CRCs and other factors such as the longstanding stigmatization of rural population (M. Zhang et al., 2021), property rights complexity (C. Yang & Qian, 2022c), and informal community governance (Z. Wang, 2022) could have played a significant role.

The deprivation of physical accessibility is also less of an issue of CRCs in our case. Although CRCs mainly stem from urban expansion in megacities like Hangzhou, they are not necessarily located in the peripheral areas. As mentioned, the Hangzhou government deployed in-situ resettlement for CRCs in Xisha subdistrict, so such CRCs are located at the then peripheral areas.

However, with the development of the Economic and Technological Development Zone, especially the university town, the CRCs have gradually gained locational advantages thanks to years of infrastructure development like roads, metro lines, parks, and commercial complexes. According to space syntax theory, the physical structure facilitates the spatial distribution of human activities and thus affects the cluster of amenities. The CRCs may experience physical accessibility deprivation in the early stages when the surrounding street/road network is underdeveloped, but it is not the case according to our analysis since the Xiasha subdistrict is now a key development area after Hangzhou implemented its latest municipal official plan. In addition, it is worth noting that our space syntax model may overlook some important factors in predicting the spatial distribution of residential communities due to methodological constraints (the exclusion of highways) and external factors (functional attractors). The former refers to the segmentation effect of the highway of the street network. The highways partition the area into four parts (Figure 2.2_d), which creates a natural barrier for the connection between two adjacent parts. This becomes a major concern for resettled villagers in the three CRCs located in the northeast part. They describe their CRCs as "the three northeastern provinces" to imply their spatial marginalization (Interview, 2021). The external factors highlight factors other than the physical structure that influence the locational choice of residential communities. The low-low cluster (Figure 2.2_d) indicates that real estate developments take advantage of water-front areas to maximize economic returns. Therefore, physical accessibility alone may be ineffective in unpacking the spatial characteristics of residential communities.

2.5.2 The diverse deprivation patterns

In most cases, the accessibility to different services reflects diverse deprivation patterns, and some of the services may not serve as effective indicators. For example, since the park is a scarce resource in the Xiasha subdistrict (a total of 35 POIs), the overall low mean of 2SFCA accessibility results renders it a less effective indicator in investigating deprivation. According to the results of the T-test between CRCs and URCs (Table 2.3), FOOD, SHOP, and MED contribute to our understanding of the variances between the two types of settlements. Our observation suggests that CRCs have higher accessibility to food and shop services because many are ungated communities (C. Yang & Qian, 2022b), which introduces higher validity and diversity regarding socio-economic activities. Gated private communities are prevalent in contemporary Chinese urbanism, which created enclosed spaces exclusively for residential land use. In contrast, CRCs are regarded as transitional communities that have yet to integrate themselves into the urban system, especially regarding community governance

and management. The gap allows CRCs leeway to bring services inside the community. CRCs also have higher accessibility to medical services, which is attributed to China's promotion of primary health care services (*jiceng yiliao*). According to *Hangzhou Regional Health 14th Five-Year Plan* (Hangzhou Government, 2021), a standardized community health center is mandatory for a newly built residential community in areas with insufficient grassroots health capacity. The policy assures residents in CRCs easy access to community health care services, whereas those in URCs may rely on public or private health providers. Yet, it is worth noting that unlike in the Western context where people often seeking health care services in clinics, the system is less developed in China and patients prefer to visit hospitals directly. This discrepancy requires a cautious interpretation of accessibility to medical services.

Although the results indicate that CRCs may experience deprivation differently, it is still inconclusive as to how spatial factors contribute to the accessibility deprivation of certain communities. While SHX is identified as the most deprived CRC, our site visits did not provide many insightful accounts except that 1) it locates in the peripheral area of the Xisha subdistrict and many development projects were undergoing in its surrounding areas; and 2) it is adjacent to a highway to the north and a river to the east. Surprisingly, SHX even ranks second regarding physical accessibility (Figure 2.5). This further weakens the causality between physical accessibility and deprivation in broad terms. In this sense, the implementation of MCDA and SA becomes essential to constructing effective deprivation indices. The merits of introducing such methods lie in the followings. First, MCDA enables the incorporation of "perceived deprivation" (X. Gao et al., 2021) in the pre- and post-resettlement planning process. Government officials, academic experts, private developers, and resettled villagers may have diverse perceptions of deprivation which may bias certain criteria in evaluating CRCs' deprivation. Second, SA assists with eliminating uncertainties and facilitates a deep understanding of how and to what extent different criteria contribute to deprivation in broad terms. This is particularly conducive to real-world decision situations where available information, such as data, communication, and perception, are uncertain. Based on the results of SA, decision-makers (experts in our analysis or policymakers in reality) can recalibrate their weights selection and assignment to construct comprehensive and targeted IMDs.

2.6 Conclusion

This research aims to contribute to the existing knowledge regarding urban deprivation and resettlement communities through the following aspects. First, based on first-hand spatial data and fieldwork, this dissertation investigates the accessibility deprivation of concentrated resettlement communities that are produced amid urbanization through resettlement in China. The findings suggest that in Hangzhou, concentrated resettlement communities (CRCs) are not materially deprived compared to urban residential communities. Instead, they have higher accessibility to services, which implies that material deprivation that is often results from spatial segregation is not the primary contributor to CRC's marginalization in urban areas. Methodologically, this dissertation offers an innovative measurement of deprivation by integrating space syntax with multiple-criteria decision analysis. Facilitated by sensitivity analysis, this research addresses uncertainties associated with identifying deprivation, especially various decision-maker groups' perceptions and different criteria's contributing factors. Practically, this research is a timely contribution to resettlement planning and policy in China. There have been years of academic attention and policy evolution to rural-to-urban resettlement (W. Gao et al., 2021; Z. Qian, 2015a; Rogers et al., 2020; Shi, Yu, et al., 2021b; Wilmsen & Rogers, 2019; C. Yang & Qian, 2021), paying heightened attention to the compensation issue as a material necessity. Yet, resettled villagers' post-resettlement adaptation and long-term socio-economic situations received less attention in existing resettlement policies. The indices of multiple deprivations (IMDs) of resettlement communities proposed in this research is instrumental in examining the potential deprivation of CRCs through a lens of accessibility, which can also shed light on further locational choices for establishing new CRCs.

This research is among the early exploratory attempts to construct IMDs for resettlement communities in China and is thus subject to several limitations. First off, this research is limited to its ecological design and inevitably suffers from ecological fallacy (Lancaster & Green, 2002; Lokar et al., 2019). That is, the area-based deprivation of concentrated resettlement communities may not speak for individual resettled villagers even if their perceptions are included in the measurement. Indeed, the heterogeneity among resettled villagers in their post-resettlement adaptation has been well documented in the existing literature (C. Yang & Qian, 2022b). Further research is needed to obtain individual deprivation measures for a detailed picture of post-resettlement adaptation in Chinese cities. Second, while this research focuses on spatial accessibility, the concept of accessibility can also be interpreted from financial and social perspectives. The former points to resettled villagers'

ability to pay and access urban commercial activities and services, such as visiting malls and using more expensive travel modalities such as personal vehicles and uber/taxi services. The latter captures resettled villagers' lack of social capital and social network connections in an urban society (Parks, 2004). This is especially the case for resettled villagers in China who are used to the rural "acquaintance society" and are forced into the urban society that relies on market exchange. Further research on these aspects of accessibility is essential to a comprehensive and nuanced understanding of resettled villagers' socio-economic situations in contemporary China. Regarding the improvement of the IMDs proposed in this research, the different aspects of accessibility can serve a reference for constructing the upper-level criteria. Under each criterion, different factors can be identified, such as social accessibility regarding education, employment skills, social networks, and others. Pairwise comparison can be performed at two levels to obtain effective weights: among different criteria and different factors. Third, although our research reveals that material deprivation may not be the primary hindrance to resettled villagers in CRCs, the results should be viewed with caution considering the following. Hangzhou is among the most developed megacities in China, and it cannot serve as the benchmark for other cities regarding service provisions in urban areas. Besides, the resettlement process in the Xiasha subdistrict commenced in 2005, and all CRCs were completed in 2017, whereas our data shows the most recent spatial distribution of POIs that is updated in June 2022. As such, the current socio-economic situation of CRCs does not speak for the deprivation that resettled villagers may experience over the long course. Moreover, data availability has long been an issue in quantitative urban studies. Further research should carry out a city-wide scan for CRCs to establish comprehensive IMDs. While new urban data such as POIs are relatively convenient in the acquisition, the CRCs' information are not made public and explicit since rural-to-urban CRCs are often conflated with other types of urban resettlement communities in the public statement and discourse. It is therefore essential to establish a database of CRCs in urban China for the benefit of further research. Last but not least, the different categories of POI data may overlap with each other, and thus the results may be interpreted with caution. For example, convenience stores (SHOP) may also serve fast foods (FOOD) in urban areas, which may weaken the explanatory power of the results of this research.

Chapter 3
Urbanization through resettlement and the production of space in Hangzhou's concentrated resettlement communities

3.1 Introduction

In the context of planetary urbanization (Brenner & Schmid, 2015a), the rising urbanization rate signifies a dramatic transition from rural to urban regarding physical space, population, and production modes. The urbanization process unfolds itself through the form of creative destruction globally. Human settlements' spatial form and social relations have thus been subject to three constitutive moments of urbanization: concentrated, extended, and differential (Brenner & Schmid, 2015a). In theory, extended urbanization supports concentrated urbanization through constantly making operational landscape from the non-urban area; differential urbanization involves the creative destruction of socio-spatial configurations to produce new urban potentials. In practice, the enclosure of landscape worldwide has accelerated capital circulation at the cost of destructing existing socio-spatial arrangements of millions, not only in the form of "accumulation by dispossession" (Harvey, 2008). In this sense, urbanization always involves the reproduction of space, social relations, and political structures rather than solely production from an untouched territory. Going by this definition, rural-to-urban resettlement can also be conceptualized as a specific form of urbanization.

In recent years, urbanization through resettlement in Asian countries especially in China has garnered increasing scholarly attention (Z. Qian, 2017; Shannon et al., 2018; Y. Yang et al., 2020). International development agencies like World Bank and Asian Development Bank have put heightened heed to achieving inclusive resettlement amid their funded development projects. However, post-resettlement adaptation still plagues the resettled, and governments who often lead the process are grappling with providing inclusive resettlement for the affected people (Arnall, 2019; Wilmsen & Webber, 2015b; X. B. Xie et al., 2014). In China alone, 9.6 million farmers are resettled during the Thirteen Five-Year Plan (2016-2020) to alleviate poverty (Xinhua News Agency, 2020). The state-led growth incurs the displacement of farmers and the dispossession of rural lands. To address these issues, the Chinese government has gradually abandoned the "urban-biased" developmental strategy (S. Wang et al., 2019) and proactively engaged with urban-rural integration (K. Chen et al., 2020a) which took shape as early as 2002. The integrated development aims to

achieve an effective resource allocation in both urban and rural areas, and thus rural idle land and labor surplus are channeled to urban areas. In this context, a sequence of changes has been imposed onto farmers, including the transition of identity (Bao et al., 2017), the relocation of residence (Rogers et al., 2020), the restructuring of social relations (W. Wu et al., 2019), and re-employment (Y. Xie, 2019). China's development path has pointed to an alternative development mode for countries in the global south to actively participate in the urbanization fever. Within this mode, rural-to-urban resettlement as a potent tool warrants deep explication.

Resettlement communities serve as an important medium for effectively studying how resettled people are affected by urbanization. While the phenomenon of concentrated resettlement communities (CRCs) has garnered wide attention in prior research (Z. Qian, 2019; W. Wu et al., 2019; W. Zhao & Zou, 2017; L. Zhou & Xiong, 2019), limited attempts have been made to investigate and conceptualize the variance of CRCs that are produced in different stages of China's urbanization. The lack of dynamic interpretations of how the resettled interact with state-led resettlement projects challenges effective planning remedies and sustainable development strategies. CRCs can take various manifestations in China, two of which are more prevalent and widely discussed, namely those established for the purpose of land consolidation in rural areas (Long, 2014) and those for that of urban expansion (J. Li et al., 2016). While both processes engender forced upstairs farmers (*bei shanglou*), there are major departures between them with respect to the lifestyle of farmers in the wake of the transformation. To wit, the villagers living in rural CRCs retain their status as rural residents as opposed to the landless farmers who are (in)voluntarily "upgraded" into the privileged urban residents (Yang and Qian, 2021). These urbanites have become one of the most hotly debated topics in Chinese urban studies with focal points revolving around institutional constraints (Hui et al., 2013b), confrontations (Sargeson, 2013), and acculturation (S. Zhang & Qian, 2020). Therefore, whether CRCs offered an inclusive solution to accommodate the displaced villagers and facilitate their adaptation to urban life calls for imminent and prudent scrutiny. In this research, the CRCs are specifically referred to as those that emerged and were planned amidst the context of urban expansion in Chinese cities, where villagers living in peripheral urban areas were physically relocated to CRCs after land expropriation and administrative reclassification (J. Chen et al., 2021; Guan et al., 2018; J. Zhang & Wu, 2006).

Building on Henri Lefebvre's conceptual triad of "the production of space", this research interrogates the production of CRCs in the "Orient" context (Lefebvre, 1991, p. 42). It argues that

since space production involves three constitutive moments -- namely spatial practice, representations of space, representational space -- capturing the interplay between the three, especially through a dynamic lens is essential to address why a particular type of space can be produced in different manifestations, such as CRCs in China. By investigating the interaction between resettled villagers' everyday activities and the planned space of state-led resettlement projects, this research further reveals how urbanization through resettlement unfolds in China and how resettled farmers are affected by the process. Although state-led and top-down mechanisms characterize China's urbanization (L. H. Ong, 2014), many western theories grounded in capitalist settings also help conceptualize and unpack the transitional socialist urban landscape (Z. Qian, 2011; J. Yang et al., 2019; Y. Zhou et al., 2019). After Deng Xiaoping's decision on the liberation of then communist-ruled economy, the neoliberalism ideology has swept post-reform China and become hegemonic in Chinese administrations (F. Wu, 2008). Owning to China's distinctive political-economic context, researchers have achieved consensus that neoliberalization in China is representative of strong 'Chinese Characteristics' (Harvey, 2005; A. Ong, 2007; Peck & Zhang, 2013) and the space production in China, by the same token, is distinctive. The creative destruction of rural space by resettlement inevitably carries Chinese characteristics. Rural-to-urban resettlement has become an important tool of the Chinese government to promote urbanization (K. W. Chan, 2012), and the notion of "resettlement with Chinese Characteristics" (C. Yang & Qian, 2021) points to a new chapter of resettlement as urbanization beyond the concept of "resettlement as development" (Rogers & Wilmsen, 2019) in China. The mechanism of how resettlement contributes to urban space production and restructuring of existing social relations warrants in-depth investigation.

This research intends to contribute to the existing international literature through the following aspects. First, it pinpoints an emerging development mode of urbanization through resettlement in China, which adds new knowledge to resettlement literature. Second, by focusing on post-resettlement communities, this dissertation expands the traditional application of space production theory with a dynamic lens and contends that the main determinant in the production of space is the interaction between peoples' social relations and the imposed spatial planning. This spatial-temporal conceptualization can help address the longstanding issue of achieving inclusive adaptation for the resettled and why a one-size-fits-all planning policy is inadequate in facilitating inclusive resettlement. Both the development mode and the deep understanding of inclusive post-resettlement adaptation can have positive implications on development policies and planning practices in China

and the Asian context. Hangzhou's lesson points to a development mode beyond the development-induced displacement and resettlement (DIDR), and the focus on the spatial dimension of post-resettlement adaptation goes beyond the new Environmental and Social Framework (ESF) adopted by the World Bank in 2016. This research is also a timely contribution to policy discussions in China in two ways. First, China's New-Type Urbanization Plan (2021-2035) pays heighted attention to promoting the citizenization (*shimin hua*) of the former rural population in cities, through reforming the *hukou* system, equalizing the accessibility of public services, strengthening employment services and skills training, and improving institutional support. Resettled villagers, along with migrant workers, are therefore the key population group for China's sustainable urban development. Second, neighbourhood governance has become an integral part of urban governance in China (F. Wu & Zhang, 2022) and has played an essential role in China's strategies for coping with the COVID-19 crisis (Y. Wei et al., 2021). Against this backdrop, understanding the socio-spatial demands of the resettled villagers will be conducive to forging a more effective governance structure at the local level.

This research addresses the following research questions:1) How has the production of CRCs evolved in the last decades and what are the key features of CRCs in different periods? 2) How have the resettled villagers adapted to the CRCs produced in different times and what are the primary hindrances to their adaptation process? The remainder of this research is organized as follows. In section 2, relevant literature is explored, including urban resettlement and resettled villagers' adaptation in China and the theory of space production. Section 3 provides the conceptual framework of this study. Section 4 introduces the case of CRCs in Hangzhou and the methodology used. Section 5 reports both qualitative and quantitative results with necessary interpretations. Section 6 expands the discussion on findings and revisits the conceptual framework. The conclusion section summarizes the research with some policy implications and recommendations for further research.

3.2 Literature Review

3.2.1 Rural-to-urban resettlement and post-resettlement adaptation in concentrated resettlement communities

While urbanization has become a global condition (Brenner and Schmid, 2014), how urbanization unfolds in the global setting should be viewed with caution. Although invoking planetary urbanization thesis is conducive to comprehending resettlement processes in Asian cities, the

application of the thesis in the global south itself is under heated debate (Jazeel, 2018; Oswin, 2018; Schindler, 2017). The diverse political economy at play in Asia, especially the state's role, is the primary concern of this research, such as the "eminent domination" in India (Ren, 2017), the predatory state in Indonesia and Cambodia (Schoenberger & Beban, 2018), the political instability in Bangladesh (Feldman & Geisler, 2012), and the dominant role of authoritarian party-state in China (M. Wang & Lo, 2015). Therefore, the planetary urbanization thesis that is rooted and nurtured in the western context (Schmid, 2018) and emphasizes the market mechanism may be ineffective in a comprehensive explanation of urbanization in Asia. The state-led resettlement projects in Asia that serve as a specific form of urbanization have contributed much to the transformation of the urban landscape, especially in Asian cities (Arnall, 2019; Neef & Singer, 2015; Phuc et al., 2014). At the crux of resettlement is the issue of land and adaptation and how state-led production of space interacts with the resettled people. Prior studies have sufficiently documented these issues in Asian cities (Connell & Connell, 2016; Feldman & Geisler, 2012; Ren, 2017) and in China (Bao et al., 2017; Gomersall, 2018; Wilmsen & Wang, 2015b). In this context, the Chinese government has implemented various reforms to achieve sustainable urban development with heightened attention to urban-rural integrated development (C. Chen et al., 2019; J. Zhu & Guo, 2022), which also challenges the notion that "urban/rural distinction has come to obscure" (Brenner & Schmid, 2015a, p. 175).

The integrated development strategy is paralleled by the eviction of rural residents from their original settlements to new ones that are often concentrated and gated communities in peripheral urban areas (W. Zhao & Zou, 2017). As Wu et al., (2019) argued, these communities are commonly located in urban outskirts, featuring both urban and rural characteristics. In this regard, these resettled neighbourhoods are functioning as transitional areas for both urban and rural residents and becoming a gateway for the "floating population" (J. Luo et al., 2018) as well as the "buffer area of urbanization" (J. Li et al., 2016). Although local governments consider this strategy as a win-win solution that consolidates rural residential land for agricultural use and conserves farmland (M. Zhang et al., 2018), the affected farmers express concern and dissatisfaction with the process (Q. Chen et al., 2013; Ren, 2017; Y. Wang et al., 2018). For them, resettlement detaches them from the land on which they once lived and deprives their collective identity and solidarity that are embedded and sustained by the country life and kinship social network (Y. Wang et al., 2020b). In addition, they are not accustomed to the physical environment and space in gated communities, which are originally designed for urban residents and ignore the living customs and residential culture of farmers (J. Li et

al., 2016). The urban lifestyle also incurred substantial unexpected expenditures to farmers, such as apartment management fees, utility bills, and transportation costs (Chen Q., 2020), which significantly affects displaced farmers' experiences and expectations of the destination.

Post-resettlement adaptation in CRCs has been hotly debated in recent literature. The World Bank highlighted the barriers facing the resettled people in post-resettlement societies, been exclusion from fully participating in "political, economic, and social life" (World Bank, n.d.). In China, policies relating to land requisition compensation have evolved for years, generating a more sophisticated hybrid approach that encompasses monetary compensation, employment alternatives, and others (Gomersall, 2021; Z. Qian, 2015a; Yan et al., 2018). However, protracted urban-rural disparities, such as land ownership and hukou status, prevent resettlers from sharing the economic development that comes with urbanization. Besides, villagers in rural communities rely heavily on clan and kinship-based relations in everyday economic and social activities (Z. Qian & Xue, 2017; Y. Wang et al., 2020b; W. Wu et al., 2019). These distinctive and dominant social relations have a pronounced role in resettled villagers' post-resettlement adaptation. The less focus on the spatial container for resettled people – the resettlement community – has obscured some essential aspects of understanding post-resettlement adaptation. On the one hand, space production under the influence of neoliberalism creates private, gated, and exclusive urbanism that favours the speculative purpose of international capital (Douglass & Huang, 2007). On the other, state-led space production often fails to cater to the socio-spatial demands of the resettled (W. Liu et al., 2018; Y. Xu & Zhang, 2017; W. Zhao & Zou, 2017). Given that space is a social product (Lefebvre, 1991), the relational perspective on resettlement communities is much needed in interpreting post-resettlement adaptation. Previous studies paid excessive attention to the social adaptation of landless villagers (Bao et al., 2017; Y. Liang et al., 2014; X. B. Xie et al., 2014; M. Zhang et al., 2017), with limited research focusing on the spatial transformations within CRCs (J. Li et al., 2016; M. Zhang et al., 2018; S. Zhang & Qian, 2020; W. Zhao & Zou, 2017) These limited attempts have pointed to a research direction of unravelling how resettled villagers conduct spontaneous spatial transformations in CRCs to reconcile the conflicts between their socio-spatial demands and imposed planned spaces. However, the issue of "space mismatch" between the top-down planned CRCs and the resettled villagers' spatial demands (Yang and Qian, 2021) warrants explications beyond the economic and social perspective. Furthermore, the resettlement is more than a "spatially and temporally bounded event" (Rogers and Wilmsen, 2019) but is fraught with political complexities (Eriksen et al., 2015). However, the existing

literature reminds us of the limited political mobilization of resettled villagers in China (J. Qian & He, 2019; Ren, 2017; Shin, 2013). While the state-led resettlement has contributed significantly to the urbanization process, the long-term sustainability of resettlement projects, especially the inclusiveness of the resettled population, has become a pressing issue.

3.2.2 The theory of space production revisited

The theory of space production, or as widely known as the production of space, is a conceptual framework developed by Henri Lefebvre in his seminal work, *The Production of Space* (Lefebvre, 1991). The theory is premised upon the assertion that "(social) space is a (social) product" (p.26). This epistemological shift is often considered as the "spatial turn" in sociology (Sheller, 2017) when space is no longer passively involved in the production process as containers but actively engaged as contents itself. Lefebvre's lifelong contribution to the debates and knowledge construction of social space has spawned a robust line of research that focuses on the capitalist production of space in the eye of political economy (see works, e.g., Brenner, 2001; Harvey, 1989, 2018; Smith, 2010). Moreover, the concept of "abstract space" and "differential space" has also been two of the most widely cited notions in subsequent research (Stanek, 2011; Stewart, 1995; Wilson, 2013). As put by Wilson (2013), "abstract space" is "Lefebvre's most significant contribution to our understanding of capitalist space" (p.374). Building on these theoretical underpinnings, Lefebvre offers a comprehensive conceptual framework of the production of space, outlining three "moments" (Stewart, 1995) of the process, namely spatial practice, representations of space, and representational spaces. The triad is also referred to as the "perceived", "conceived," and "lived" space (Prigge, 2008).

The triad can also be comprehended from a triad of form-structure-function. **Spatial practice** emphasizes the materiality of social activities and interactions. Lefebvre insisted that every society has its distinctive forms of social relations that represent everyday activities as well as the connections among elements (actors)(Lefebvre, 1991, p. 31). In its concrete forms, spatial practice can be acts in public spaces, commercial hubs, residences or workplaces (Schmid, 2008). The spatial practice alluded to society and vice versa. **The representation of space** is an abstract concept that describes how spatial order is arranged, usually through the production of technocratic knowledge. In other words, the representation refers to plans, designs, drawings, and maps that are created as signs and codes of capitalist production mode of space and impose a prospective constellation of social relations. Wilson (2013) argues that the planned spatial representation is homogenous and is the

instrument of the state's power over the control of space. While spatial representation is duplicable and substitutable, it is invariably subjective to its technocratic nature. **The representational spaces**, or spaces of representation, embody the complex symbolisms of space that are "lived space" produced by the inhabitants (Milgrom, 2008). This space is shaped by the interaction between individual and community, implying "a bond grounded in experience and history" (Stanek, 2011, p. 131). The key to understanding this concept is to first examine the linkage between the signification and material symbols, which take various forms ranging from nature to artifacts to the combination of both. It is the formation of this linkage "expresses and evokes social norms, values, and experiences" (Schmid, 2008, p. 37). On this account, the concretization of the representations can be destructive to the preexisting representational spaces, the process of which "strips […] their spontaneity, diversity, and symbolic content" (Wilson, 2013, p. 371). The space production is therefore unpacked through the interconnectedness and interplay of these moments.

While space production theory is a Eurocentric and Marxist interpretation of urban space that emphasizes on political-economy under capitalism, it can be problematic and has been subjected to criticism long for being biased and neglecting other postmodernist perspectives (Massey, 1991). Unwin (2000) offers several criticisms to the theory and argues that Lefebvre's arguments tend to separate space and time and privilege space over time. Unwin holds that space must be conceptualized integrally with time and the time should be to think always in terms of space-time. McGee (2009) points out that although Lefebvre's theory facilitates the understanding of changing urban spaces in Asian cities, it does not detail the role of the state and its power of exercising planning interventions to direct the trajectory of space production, e.g., the distinctive urbanization in Vietnam and China. Lee (2022) argues that the macro perspective of space production pays excessive attention to politics and capital, thus failing to include space produced through other internal forces, such as street-level actions that are reminiscent of Jane Jacob's famous observation. Farrington (2021) cautions that reading Lefebvre's work solely from a political economy perspective that regards space as a static entity may not engage into his deeper theoretical positions. Instead, "space is inherently dynamic, constituted by a multitude of movements and flows" (p.5). Farrington challenges the taken-for-granted application of the theory in dealing with capitalism and state that is largely influenced by Harvey's work, which marginalizes the self-managed production of space by its users.

Given these theoretical disputes, some previous studies may neglect some important aspects of the theoretical framework. We argue that the above conceptual triad should be discerned as dynamic and

evolutionary as it is based on the trio of Hegel, Marx, and Nietzsche (Prigge, 2008). The triad framework has been widely cited in examining the production of space of various forms and functions (Donnelly, 2017; Granzow, 2017; Hubbard & Sanders, 2003; Tynen, 2019; X. Zhou, 2019) in both capitalist countries as well as "authoritarian capitalist" China. However, there is still room to the extent of the discourse of space production given that many previous studies adopted a static view of the conceptual framework that overlooks its spatiotemporal features. That is, the interpretation of space should rest upon a deep understanding of social relations in a specific temporal context. Zhou and Xiong (2019) capture the production of macrophysical space and reproduction of microsocial space in resettlement communities, but their findings are based on the examination of the already produced space. Building on their work, our research pays closer attention to the production process in different temporal context that leads to various outcomes of spaces. Ye et al. (2014) expand the concept of "social" in the theory of space production, arguing that the concept can be divided into political, economic, and (narrow) social aspects, which correspond to power, capital and class. While their conceptual framework considers the effect of time-variable on the production process (see Fig1 of Ye et al., 2014), they attribute the differences among different university towns to China's policy reforms especially those of rural-urban development. Yet, rather than considering the production process as a dynamic and evolutionary one, Ye et al. (2014) adopt a multi-scalar epistemological perspective, which does not capture the momentum of the evolution and the force that propels the transition. Acknowledging both the explanatory power and the above theoretical and practical issues with the theory, this research seeks to contribute to a deep understanding of the state's role and the self-managed efforts by the resettled villagers in the production of CRCs. Most importantly, it employs a dynamic and temporal perspective to capture the variations of the totality constructed upon the three moments.

3.3 The conceptual framework

Lefebvre constantly reiterates one important point in his book that production is "in fact, a process" (Lefebvre, 1991, p. 34). This fundamental thought is the evoking point of this research: to view the production of CRCs in China from a developmental perspective. The specific social space of a given society is not a work of a moment, but one that results from "contradictions in the social relations" (Lefebvre, 1991, p. 46). In addition, "time and space are not separable…space implies time, and vice versa" (Lefebvre, 1991, p. 118). It is therefore clear from above that Lefebvre considers space

production as a spatial-temporal continuum where a particular space is produced from contradictions in social relations at a distinctive time (period). The contradictions imply the mismatch between abstract space and differential space. The former points to a homogenous spatial configuration that is imposed by either capitalist production or the state, or the combination of both. The latter implies tendencies of countering or decentering abstract space through self-managed efforts individually or collectively.

This spatial-temporal continuum offers new insights into the space production process, which is conducive to addressing why a certain type of space can be distinctive when produced at different times. Following this reasoning, this research proposes a conceptual framework to capture CRCs' evolution. First, we argue that the three moments of CRCs' production are constantly evolving. As villagers resettle from rural to urban areas, their spatial practice changes accordingly, which further determines their spatial demands. Government-led planning and design of resettlement communities also vary at different times as responses to necessities of placemaking and economic development. Second, representational space is a fixed spatial-temporal pattern as it is an equilibrium resultant from the reconciliation of contractions between the other two moments. In this sense, CRCs produced in different times represent different social relations between resettled villagers and host cities. Third, since resettlement is a state-led project, the state mode of production is the main driver for CRCs' evolution. In most cases, the transition of resettled villagers' spatial practice lags the imposed spatial transformation by the government, which is the major obstacle to inclusive resettlement projects. This also speaks to the governance structure and the management of everyday activities in CRCs. To wit, strict governance implemented by the government can suppress self-managed efforts of the resettled, while fewer restrictions can unleash the potential and power of resettled villagers' appropriation of space.

This conceptualization is critical to comprehending space production as a process, and most importantly, it addresses an important practical question of why one-size-for-all planning and governance policies may be ineffective in achieving inclusive resettlement in different CRCs. This conceptual framework presupposes a dynamic, fluid, mobile society (Sheller & Urry, 2006), where perceived and conceived social relations are constantly changing. As such, the production of a specific type of space can undergo different processes thereby leading to an assortment of spaces produced.

3.4 Methodology

This research adopts an explanatory sequential mixed methods approach (O'Cathain et al., 2007). The quantitative analysis provides an initial understanding of whether there are significant differences among the three CRCs, and the qualitative analysis further explains in more detail such differences. The data were collected from various sources, including government statistical data, published papers, news articles, field visits, semi-structured interviews, and questionnaire surveys. Based on several months of fieldwork conducted in Hangzhou in 2021, this research offers an empirical lens on how CRCs have evolved and how landless farmers have adapted to the new living style over the last decade or so (2005-2017).

Hangzhou is the second largest metropolis in China's Yangtze River Delta Region and is representative of coastal cities that have undergone tremendous economic changes and reforms (Z. Qian, 2015c). The city has long been one of the pilot cities for rural policy initiatives in China, and the recent national strategy of building the "common prosperity zone" in Hangzhou and Zhejiang province has attracted wide attention. This research focuses on one of the subcenters of polycentric Hangzhou – the Economic and Technological Development Zone (ETDZ). The establishment of Hangzhou (Xiasha) ETDZ involved massive land consumption, and the supply of developable land has induced a phased "land urbanization" process through an initiative named "removing villages and establishing resettlements (RVER)" (*Checun Jianju*). It is estimated that by 2016 there were 191 resettlement communities were established and more than 370, 000 rural residents were involved in the RVER (Lang, 2019). The RVER of Hangzhou (Xiasha) ETDZ commenced in 2005 and ended in 2017. During the decade-long undertaking, a total of 12 communities were relocated with more than 3,600 households and 20,000 rural residents moving into new apartments in planned CRCs. This research will scrutinize the 12 communities that were progressively transformed to CRCs, unpacking the representative production of CRCs in the context of China's exceptional urbanization, especially

in the post-2000s (Figure 3.1).

Figure 3.1 The location of the CRCs in Hangzhou. Xiasha subdistrict is one of the five university towns in Hangzhou.
Notes. Jinsha Lake Park is the new landmark, and the surrounding has become the center of the subdistrict.

The fieldwork consists of three primary stages. In stage 1, after a thorough examination and analysis of existing documents, a preliminary investigation of the 12 CRCs was conducted. The investigation involved field observations in all 12 CRCs and relevant data were collected through photos, fieldwork notes, audio and video recordings. In stage 2, semi-structured interviews were

conducted with two groups of interviewees: experts (N=3) and local residents (N=12). The interviewees' inputs were constructive to the questionnaire questions used in stage 3. In stage 3, questionnaire surveys were carried out in three representative CRCs based on the findings of preliminary investigation and recommendations from expert interviewees**.** The three CRCs, labelled as GS, XS, and YC, were completed in 2006, 2010, and 2014, and the resettlement process lasted from 2002 to 2011, 2004 to 2013, and 2005 to 2014, respectively. The questionnaire design followed instructions given by Flowerdew and Martin (2013) and underwent three main stages. First, based on the literature review and the research objective of investigating post-resettlement adaptation, four aspects of inclusive resettlement were identified: spatial, economic, social, and political, with 10 questions assigned to each category. Second, interviews with experts and pilot surveys with 3 residents per CRC are performed to improve the reliability and validity of the survey (3 questions are dropped with a few modified). The final survey consists of 50 variables: variables 1 to 14 are demographic information, while variables 15 to 50 concern spatial, economic, social, and political dimensions of resettlement and are measured by a six-point Likert scale (see supplemental material). Since this research focuses on the resettlement and adaptation process of resettled villagers, certain inclusion criteria are applied to questionnaire participants: they had to be the resettled villagers aged over 18 (excluding tenants), living in the community, and compensated during resettlement. The survey results are used in two primary forms: determining whether there are significant differences among the three CRCs through quantitative analysis, and reporting and analyzing residents' perceptions towards particular questions based on descriptive statistics and qualitative inferences.

While previous studies recommend using a random start of an address and a fixed ensuing address interval (excluding renters) to increase randomness and representativeness, it is not suitable for this study. Literature and expert interviewees both mentioned that it is common that tenants outnumber landless farmers Hangzhou's CRCs. Therefore, we decided to approach potential participants randomly in public spaces and on the major roads of every neighbourhood (Hu et al., 2015; Wu et al., 2019) during the daytime on weekends (Z. Qian, 2019) to avoid bias (elder residents, less educated, and socially isolated individuals can take up a larger proportion of the sample during weekdays). A total of 168 valid samples were returned and the sample size for each community is 68, 50, 50, respectively. We performed chi-square tests for categorical variables 1 to 14 and ANOVA for continuous variables 15-50. The post-hoc tests of least significant difference (LSD) and Dunnett's T3 are used to explore differences between multiple groups' mean.

3.5 Results

3.5.1 Quantitative results in brief

As Table A.1 shows, there are significant dissimilarities among the three CRCs regarding resettled villagers' age, employment, education, household size, living space area, generation(s) living together, the primary source of income, urban exposure before resettlement, and commuting time. In general, respondents in early CRCs are older, less educated, live in more space, have less income, and are less involved in urban life before resettlement. According to Table A.2, resettled villagers in different CRCs only share a few commonalities, such as "I am more satisfied with the public space in the community than in the countryside" (VAR017), "I hope there will be further improvements in the community" (VAR022), "I am satisfied with the extra income and benefits provided by the village collective" (VAR040), "I think the resettlement project is good for urban development" (VAR049), and so forth. There are significant differences between at least two CRCs in most other variables, and some variables show significant differences among all three CRCs. For example, villagers in GS prefer living in urban apartments to rural houses compared to those in XS and YC, while the latter two group's preferences are analogous (VAR015). As for the fairness of the whole resettlement process (VAR044), villagers in the three communities hold different attitudes: the newer the neighbourhood, the fairer the villagers feel. Building on these findings, the following sections explore how space is produced in the three CRCs and how production processes affect villagers' post-resettlement adaptation, and most importantly, how the different space production processes generate the differences identified by the quantitative analysis.

3.5.2 Spatial practice: from rural to urban living

The traditional spatial practice in the countryside is completely different from that in cities in three key aspects, economic activities, social relations, and spatial arrangements. Villagers have gradually quit farming and started relying on urban employments; the "acquaintance society" has been superseded by a society that relies on the economic exchange; and the rural urban form has transformed to a strictly planned urban form.

Due to the time variation of the three CRCs, villagers' spatial practice also varies. Generally, the resettled villagers in newly established CRC are younger (people aged 60 or above accounting for

80%, 55.6%, and 38%[6]), better-educated (college and above are 8%, 16.2%, and 38%), and rely more on salary income (14%, 32.4%, and 54%). This is partially due to the differences in their urban exposure before resettlement (daily exposure are 28.6%, 86.8%, and 63.8%). This demographic discrepancy directly impacts how villagers use community spaces. During our field observation, villagers of GS often gather and socialize in public space, courtyard space, or on the street right in front of their doors (like what they did in the countryside), while this is rarely seen in XS and YC as most residents spend their time either at workplace or home. For them, community spaces may not entail the meaning of social reunion but represent more of an abstract place functioning as home as opposed to other abstract workspaces. Previous research has highlighted the heterogeneity among landless villagers in their adaptation to urban life due to their familiarity with urban life (L. Cheng et al., 2018). Our finding also supports such arguments, but we find that early contact with urban life may unduly increase villagers' expectations over resettlement, which further renders them less satisfied with their new life. The villagers in GS (4.6[7]) prefer an urban lifestyle to a rural one compared to XS (3.5) and YC (3.8). Similarly, they are more satisfied with the convenience of living in the CRC (5.34 in GS and 3.98 in YC).

As the local economy booms especially the real estate market, resettled villagers may develop higher expectations towards the financial return of their dispossessed land, which makes it hard for the local government to provide an "adequate and reasonable" compensation package, especially in monetary terms (E_01, 2021[8]). This inconsistency is reflected by the overall discontent of the resettled villagers towards their resettlement compensation (2.4, 3.4, and 2.9). In particular, for senior residents in GS, it is demanding for them to participate in the urban labour market since they resettled, which leads to a noticeable low level of satisfaction of income (2.8 compared to 3.9 and 3.62). Rent (66%) and pension (18%) are thus the two primary sources of income for them. During the economic transition, employment is the major obstacle for landless villagers. While some are better prepared, most were unable to find formal employment, and the process is largely their own efforts with marginal help from the government (R_YC02, 2021). Economically speaking, for early

[6] For convenience, when listing three sets of data, they will always be ordered in reference to GS, XS, YC, respectively in the paper.

[7] The use of this format of data is to report the mean of the answers to the questionnaire unless specified.

[8] This format of the in-text citation is used to refer to interview data. E stands for Expert, and R stands for resettled villagers.

CRCs, the resettlement completely disrupted this self-sufficient economic system and threw landless villagers into a society that relies entirely on market exchange; for later ones, the change may be less influential since many villagers have already been involved in the urban economic system. The loss of work flexibility after resettlement is a major concern for villagers, especially for those in early CRCs. Prior to resettlement, villagers can find some informal and flexible employment opportunities besides farming in peripheral urban areas, such as setting up street stalls, becoming temporary construction workers, or scavenging. After resettlement, they can neither farm for subsistence nor participate in these informal economic activities. The economic demand is gradually transformed into spatial demand, which triggers their spontaneous efforts in space appropriation (see section 5.4 for more details).

Socially speaking, social relations within rural society have been dramatically restructured by resettlement, but they are maintained better in older CRCs. The infamous gated community with high-rise apartments has long been criticized for lacking a sense of community, alienating neighbourhood communications, and creating exclusory space in China (P. Zhao & Zhang, 2018; W. Zhao & Zou, 2017). This is in line with some of our findings where residents claim that social relations have been diluted due to the apartment living style which limits their opportunities to drop by their neighbours (R_XS03, 2021). Some attribute social alienation to the influx of tenants in the community (R_YC04, 2021). While the change in social relations is inevitable, most of the respondents are relatively contented with the current situation. They maintain strong connections with their neighbours (5.3, 4.4, 4.0), family (5.7, 5.4, 5.2), and relatives (5.3, 4.8, 4.6), and GS shows a significantly higher mean. In rural areas, the social network within a village is sustained by two major bonds: family (clan and kinship) and acquaintance. In all three communities, the former is well maintained through the scheme of housing units' assignment. One household is often allocated with more than one apartment unit. Although the allocation is determined by lottery, households can choose two adjacent units: one for their family and one for their parents. In contrast, the latter bond is destroyed because of remarkable changes in spatial layouts of communities as well as the reasons noted above. Besides, in early CRCs like GS, resettled villagers tend to demonstrate inertia in identity transition, where they retain more rural habits (4.78, 3.91, 3.95), consider themselves less a member of the community than the village (3.1, 4.1, 4.0), and believe their community is very united (4.2, 4.0, 3.0). This enduring rurality, while being an issue for the urban system, is essential to resettled villagers in facilitating their adaptation.

Spatially speaking, data suggest that villagers of early CRCs prefer urban physical environments more than those of later CRCs. For example, villagers of GS prefer the following aspects in urban to those in rural: housing space (5.0, 3.4, 3.2), community environment (4.8, 4.2, 3.6), public space (4.3, 3.7, 3.7), the location of the community (5.5, 5.6, 4.0), and even lifestyle (4.6, 3.5, 3.8). The differentiation can be attributed to two potential factors: 1) they have relatively longer adaptation time as a buffer and 2) the gap between rural and urban has been narrowed gradually. Nevertheless, qualitative data point to many spatial barriers for the resettled, such as lack of living space and space for ritual events, social gathering, planting/farming, drying clothes and quilts (R_XS01, R_YC01, R_YC05, R_GS03, 2021). As such, villagers in the three CRCs unanimously call for further improvements and reconstruction to be implemented in the communities (5.3, 4.9, 5.1). One interesting observation is that villagers in XS create informal meeting spaces to disseminate information, exchange ideas, and complain about village cadres' inaction in improving their living standards. This grassroots meeting space is transformed from the apartment's entry lobby that is originally designed as a parking spot for bicycles and electric scooters. Unlike the meeting space inside the village committee's office building that is exclusively used for committee meetings to conduct political matters or formalistic voting, the grassroots meeting space is built upon the already established social networks shared by villagers which are more inclusive. Spatial transformations like this reflect villagers' responses to the neglect of their spatial practice inherited from rural society by resettlement and the urban society.

3.5.3 The representation of space: a top-down creation of space

The growth-coalition and state-led development theses are widely acknowledged in unpacking China's urbanization. Resettlement as a specific form of urbanization is no exception (C. Yang & Qian, 2021). As such, the 12 CRCs in Hangzhou (Xiasha) ETDZ are all designed and constructed in a technocratic manner, where voices from resettled villagers are seldom heard and therefore creating contradictions in realizing lived space for the resettled. These CRCs produced in different periods speak for the then "top-notch" site plan and architectural design for resettlement communities. Hangzhou government implemented in-situ resettlement for these CRCs, so their sites are originally in the fringe areas of Hangzhou. However, after ETDZ was designed as a sub-center of Hangzhou in 2005, the rapid development, especially that of the university town, channels in a large population, which increases the local population from 21,200 in 2005 to 117,800 in 2017. The concomitant infrastructure developments such as parks, commercial centers, metro lines, have substantially

reshaped the built environment surrounding the CRCs. Jinsha Lake Park is becoming a new landmark for ETDZ, and the CRCs have benefited from such locational advantages (Figure 3.1). As time goes, there is a noticeable evolution of CRCs regarding their morphological and typological characteristics, such as layout, building heights and density, and land use pattern. There are three typologies of CRCs identified, namely the low-density ungated community, the mid-density ungated/gated community, and the high-density gated community. The morphology of these three sets of CRCs and the streetscape images are presented in Figure 3.2. Some salient features are worth pointing out and elaborating here.

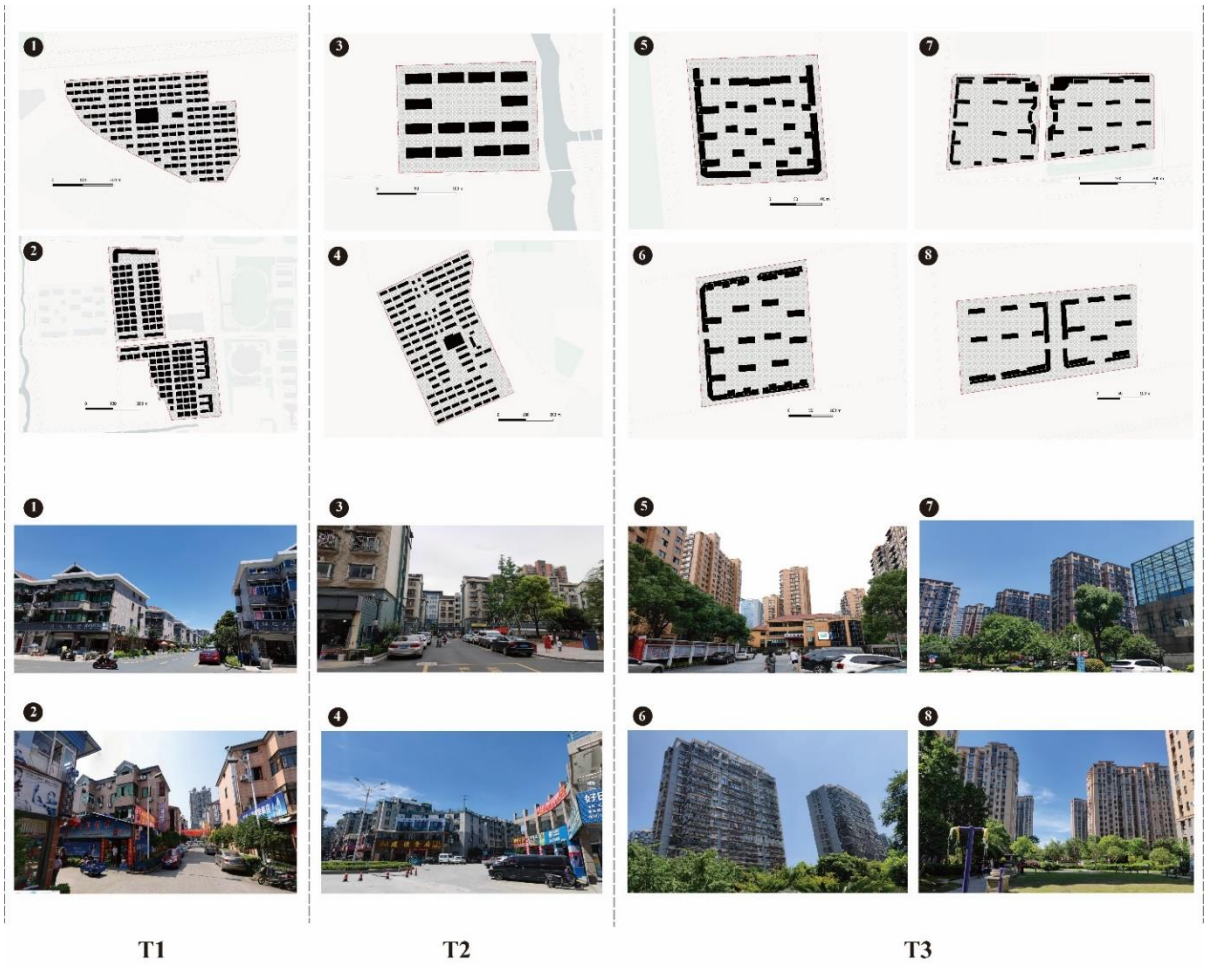

Figure 3.2 The morphology of three sets of CRCs (upper two rows) and the streetscape images (bottom two rows).

Notes.Different typologies are differentiated by the grey dashed lines: from left to right, the first column shows the typology of low-density ungated communities (T1), the second column shows that

of mid-density ungated/gated communities (T2), the third and fourth combined shows that of high-density gated communities (T3).

The CRCs transformed from low density to high density. From T1 to T3, the building storey increases from 4 to 6 and then to 18, with some up to 24. Accordingly, the area coverage of CRCs decreases, given more vertical spaces are created to accommodate more households. For example, the land coverage of CRC#1 is around 14.3 hectares while CRC#8 is around 7.5 hectares. Considering CRC#8 accommodates more resettlement households (465) than CRC#1 does (215), the high-density resettlement community is more favourable by the local governments in balancing the budget, considering the constantly escalating costs of land (Interview E_02, 2021). Indeed, high-density resettlement has been a hotly debated topic in China with s major focus centered on low-quality living embedded with this building typology for resettlement communities (Y. Wang et al., 2020b). Apart from the buildings' height, the spacing between buildings is also getting larger. However, these rooms spared by the vertical tendency do not convert to more public space but instead are occupied by parking lots and inaccessible landscape spaces. CRCs abutting subdistrict centers such as GS and XS are far from parks due to tight land resources, while relatively remote CRCs like YC is closer to accessible public green space and landscape due to low development intensity. The lack of community management, especially the entrance regulation even leads to the encroachment of such spaces by outsiders trespassing and indiscriminate parking inside the community (R_YC01, 2021). Critiques of the lack of human-centred design in urban communities have stimulated many avant-garde architects' projects (Hangzhou Daily, 2022b), focusing on the improvement of living spaces in resettlement communities. However, such attempts pale at the massive capitalist production of urban residential communities as commodities and the state's political imperative of efficiency. High density has become the common theme for residential spaces in urban China, which has also been adopted in the representation of space envisaged by the government.

The CRCs changed from ungated to gated communities. As mentioned, the two CRCs under T1 and CRC#4 are ungated communities, and the rest are all gated communities. From our observation, since 2012, the gated community has become the dominant even the sole form of new residential development. According to an urban scholar (E_03, 2021), this form of community is a deliberated design for the purpose of firm control of resettled villagers by the local government. Nonetheless, this assertion may be untenable as the gated community proliferates on its own in urban China (Z. Qian, 2019). Moreover, while the government holds that imposed borders could potentially enhance the

solidarity and security of CRCs by using urban community governance strategies (E_01, 2021), it is not the case in our study. In contrast, villagers in ungated CRC consider their community more united (4.1, 4.0, 3.0) and secure (5.3, 4.4, 3.4). Compared to the urban society that relies on the community management system in assuring social stability, the legacy of rural society (acquaintance society) has played a much more critical role in the early CRCs, which is analogous to the seminal concept of "eyes on the street" (Jacobs, 1961). It is also worth noting that while the residential community is established for resettled villagers, they are not the only social group in the community. According to statistics, there are 119 CRCs with more than 70% residents as former villagers, 34 CRCs with former villagers accounted for 30% to 70%, and 38 with the proportion less than 30% (X. Liang, 2019). Much of the population is contributed by the floating population, which imposes potential risks to the social stability of local CRCs. In this sense, the "gated" form does not necessarily improve the effectiveness of the community management.

The CRCs are produced amid a resettlement process that excludes the resettled villagers' participation. While the villagers show a strong interest in engaging in the decision-making process of resettlement projects (5.1, 4.3, 4.2), they are generally passive recipients who are only informed of the decisions during public hearings. In most cases, the government informs villagers of the resettlement in the early stages, followed by village cadres' collective or targeted mobilization, which leaves no leeway for the individual villager to negotiate (R_GS02, E_01, 2021). While the villagers concur that resettlement projects are conducive to urban development (4.7, 4.5, 4.1), they are dissatisfied with the resettlement policies (2.4, 3.8, 3.8) and the outcomes that did not meet expectations as promised by the government (2.8, 3.5, 3.6). Since villagers in early CRCs suffer most in this political marginalization, they are more active in participating in the reconstruction of the CRC (4.8, 3.9, 4.0) and voting of the residence committee (5.3, 3.3, 4.3). However, most respondents in our interviews believe that the impact of their voices is marginal, and the government holds the ultimate role in decision making (R_YC01, R_YC02, R_YC03, R_GS02). This polarization of power is bound to induce confrontations in the lived space. While the government-led planning of the resettlement communities intends to mitigate the gap between affected villagers and urban citizens regarding the quality of living spaces through infrastructure upgrading, it did not account for the transitional state of villagers' socio-spatial demands. To wit, while the high-density gated community is advocated in urban areas because of being economically effective, more modern and civilized, and more

manageable, it does not contribute significantly to social construction among residents (Yip, 2012), especially for the resettled.

3.5.4 The lived space: the reconciliation of conflicts towards inclusive resettlement

According to Lefebvre (2003), the urban presents itself as a place of conflict. The social conflicts embedded in the capitalist mode of space production have manifested in the form of people's claim over space, or as in Lefebvre's words, the claim to "the right to the city" (Lefebvre, 1996). Nonetheless, the oppressed, alienated, excluded, and deprived who are the primary actors leading the process to reaffirm their right to the city have not fully leveraged the claim to challenge the existing uneven power dynamics in urban space production. This is partially due to the ambiguity and openness of the notion as well as its theoretical abstraction (Attoh, 2011; Brenner et al., 2009). In China, the production of urban space is a state-dominated course (Ye et al., 2014). In this sense, to achieve clarity in the research, we focus on the resettled as actors in realizing their "everyday life" to construe the third moment of Lefebvre's conceptual triad – the representational space. Indeed, the process of space production is a mediation of clashes between the demands of space and the planned space, which leads to the spontaneous reactions of those who are passively and involuntarily involved in the process. It is worthwhile to note that the power of mediation is a two-way undertaking, giving rise to practices to produce/appropriate space from the "combination of the deprived and the discontented" (Marcuse, 2009, p. 191) and responsive schemes of the agents exercising the privilege over space production. We will present the lived space from the three-dimensional adaptation: economic, social, and spatial.

As mentioned, during the rural to urban transition, the resettled villagers faced huge economic challenges, especially for those in early CRCs who were completely outside of the urban economic system. Besides the daily expenses, they are also responsible for paying for annual health insurance and social security (around 15,000 RMB). Although the local government of Xiasha district implemented an innovative policy of collective retained land to subsidize the landless villagers, the annual income generated from the program (7,000 to 10,000 RMB) is inadequate (R_XS01, 2021). The initial compensation for resettlement is primarily in the form of housing provision with a small amount of monetary compensation that is primarily invested into renovation and furniture (around 200, 000 RMB). To overcome the issue of lacking stable income, the resettled strives for new means of income generation. In GS, the physical space along with the land use is subversively transformed

by the resettled villagers, which comes in two primary forms: 1) the semi-detached house unit is transformed into a family hotel, and 2) the first floor of the unit is leased out for commercial use, particularly for restaurant (Figure 3.3a, 3.4b). This informal transformation of buildings and land use has long been tacitly sanctioned by the local government and this urban informality is indeed incurred by the resettlement (M. Zhang et al., 2018; W. Zhao & Zou, 2017). While early CRCs have more flexibility in space transformation to reap economic benefits, the strict urban community management system implemented in latter CRCs substantially constrained such bottom-up strategies in improving their economic status.

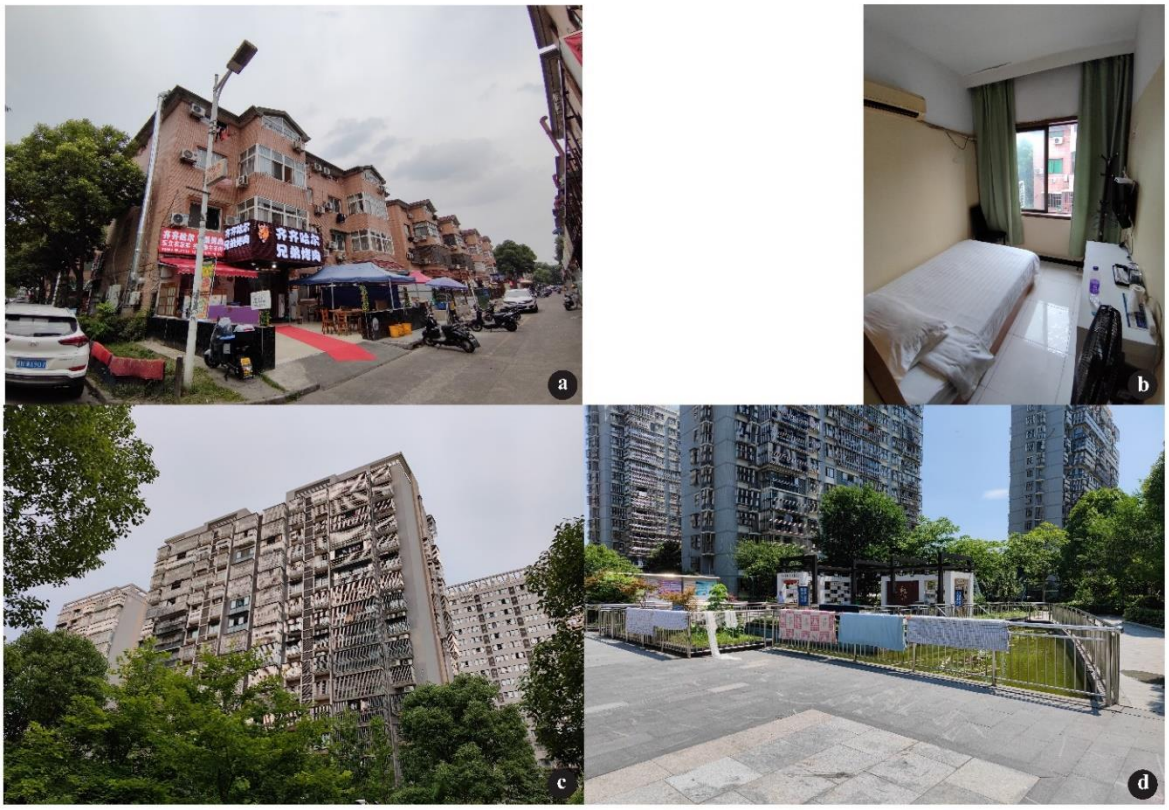

Figure 3.3 Representative practices of spatial transformation in CRCs.

a. Villagers in GS transform the first floor of their houses into commercial use spaces for lease (BBQ shop as shown in the photo). b. Villagers in GS use their upper stair rooms as a family hotel. The room in the photo costs 120rmb per night. c. Villagers in YC all choose to install steel fences on their windows. d. Villagers in YC hang quilts over the railings surrounding a public pond to air out in the sun.

Social adaptation is less challenging than economic adaptation, but the adaptation process is differentiated in different CRCs. While new CRCs have more social conflicts, there are fewer collective efforts of the villagers. The primary concern is the security of the community. In YC, many respondents told us that there were thefts that occurred recently (E_YC03). The concern has further spawned a 'birdcage' landscape (Figure 3.3c) where almost all units' window is covered by steel fences to protect them from theft and burglary. Worse still, residents in YC blame their community management company for being irresponsible in their job. Considering that the company is established and operated by the village committee, the political confrontation between the villagers and the leadership further undermines the social bond. In contrast, villagers in GS believe their community has high security (5.3, 4.4, 3.7). This is counterintuitive at the first glance since the community is ungated, diverse in land use, chaotic and informal. The reason may lie in that they are more united (4.1, 4.0, 3.0) and retain their rural identity anchored with the rural society where social relations are hinged upon kinship and clan as well as acquaintances (Barbalet, 2020). The collectivism that defines rural spatial practice (Kan, 2021) is better retained in early CRCs, which facilitates social adaptation of the resettled. Although the government seeks to improve social adaptation through assigning neighbouring units for a household to accommodate different generations, the attempt is less effective in creating a socially inclusive community.

Spatial conflict is the most prominent problem in resettlement communities. Drawing from previous literature (J. Li et al., 2016; W. Wu et al., 2019; S. Zhang & Qian, 2020; W. Zhao & Zou, 2017) and our observation, we outlined a series of spontaneous attempts that have been made by the resettled villagers to transform the imposed space and to reconcile their socio-spatial demands with the space produced (Table 1). This list is by no means exhaustive but reflects evident tensions between the continuity of rurality and the banal urbanity, which is endemic in the resettlement's living. For early CRCs like GS, the courtyard space at the first floor and the less rigid community management confers more flexibility to the villagers in deploying their self-management of both private and public community spaces. The only hindrance is the informality associated with their transformation and the sudden planning intervention by the government. According to a villager (E_GS01), "Last year, every household's yard shacks are forced to demolish, the neighbourhood committee said there would be unified planning, but nothing happened afterwards." In XS, the most controversial issue is the lack of nuptial and funeral space, or precisely, the encroachment of this space by the village cadres to complement their office space (E_XS02). In YC, the appropriation of

public space to dry food and bedding is the most common way to meet the spatial demands of the resettled villagers (Figure 3.3d). In the latter two communities, urban governance and the formality of urban residential communities have hindered the self-management of the resettled.

Table 3.1 A list of resettled villagers' spontaneous attempts to reconcile their socio-spatial demands with the space produced

Everyday life	Demands over space	Planned space	Practices to produce/appropriate space	Responsive strategy
Production	Planting/farming	Ignored[a]	Indoor and outdoor planting pots, rooftops, open green spaces near or inside the community	Community management[b]
	Poultry rearing	Ignored	Breeding poultries in the community (outside their apartment)	Community management
	Commercial	Designated commercial spots outside of the community	Adapt the first floor of a residential building (garage use) into combined commercial and residential use/street vending	Architectural design[c] and community management
Residential	Storage	Within apartment	Clutter piling/ stacking waste sundries in the community's conner space	Community management
	Drying (clothes and quilts)	Balcony within apartment	Hanging quilts to air out in the sun through invading public space and tying up strings in the green space	Community management
	Courtyard	Ignored	Occupying the Communal space such as apartment building corridors	Architectural design and community management
	Multi-generational living	Separate apartment units	Living in different apartments	Not addressed
	Vertical transportation	Ignored in early low-rise CRCs /elevators installed for later CRCs	Living with the current condition	Old community renovation[d] and architectural design
Communication/ Socializing	Chatting	Community center and open spaces	Occupying apartment building entrance	Not addressed
	Recreational	Sport facilities in open spaces	Besides the designated space, appropriating parking space to set up chess and board tables	Architectural design and community management
Ritual/cultural	Nuptial and funeral space	Ignored in early CRCs/ community	Temporarily establish a shed to hold wedding and funeral ceremonies in community	Architectural design

	centers in later CRCs	open spaces or ground parking lots

Notes. a. “Ignored” indicates that no consideration was given to the demand since it is not compatible with urban communities. b. The community management system imposes strict restrictions on public space usage to prohibit individual’s appropriation of public space. c. Some functional spaces that are oversighted in early CRCs are considered in the architectural design of new CRCs. d. In recent year, the central government of China is devoted to promoting old community renovation in major cities to significantly improve the residents’ living condition.

3.6 Discussion

Resettlement in the global south has become an important vehicle of capitalist production due to the intensification of globalization and the spate of neoliberalism (Parnell & Robinson, 2012). As Rogers and Wilmsen (2019) rightly put, “[t]hrough resettlement, people and places are made more amenable to incorporation within the capitalist economy” (p.5). However, in Asian countries, the dominant role of the state in space production may not be fully captured by the resettlement with development framing. China has propelled massive urbanization through resettlement in cities of all levels. The government-led rural-to-urban resettlement has expanded our knowledge to highlight the development path of urbanization through resettlement. Development issues like informal settlements (Zapata Campos et al., 2022) and DIDR (Y. Wang et al., 2020a) have significantly impeded developing countries’ endeavors towards the overall Sustainable Development Goals (SDGs).The lack of systematic planning of urban-rural relations has problematized people’s adaptation to urbanization and development, especially for rural residents. Hangzhou’s case epitomizes China’s nationwide state-led resettlement projects under the strategy of urban-rural integration. Urbanization through resettlement thus showcases the state’s role in facilitating urbanization by producing settlement space to accommodate the influx of rural population in urban areas. While placing this notion against planetary urbanization facilitates our understanding of how urban and rural realms interact with each other, the much-complicated mechanism of state-led space production cannot be explained through the theoretical framework of planetary urbanization alone. The theory of space production, instead, is more effective in examining how space is produced through resettlement in urban areas. It is particularly instrumental to expounding the production process as a reconciliation of social contradictions between resettled villagers and the government’s technocratic planning.

In China, resettlement communities have been created homogeneous in urban areas. Nevertheless, if the production is viewed in a progressive manner, pronounced variations among different CRCs have frequently prompted concern. The spatial-temporal patterns of space production are relevant to

the directions of resettlement policy reform. In early CRCs like GS, the continuity of rural spatial practice has impeded the resettled villagers' economic adaptation but facilitated social adaptation. With the relatively flexible planning and management of the CRCs, residents are enabled to adopt various spatial strategies to reshape spaces in favour of their everyday activities. In contrast to the early ones, the latter CRCs like YC are composed of diverse groups of villagers, with most of them having already embraced urban spatial practice. The planning and management of such CRCs are made to align with those of urban residential communities, aiming to achieve universal urban governance over communities. The diluted collectivism in these communities renders the collective effort in claiming their rights over space appropriation marginal (Tayebi, 2013). In this context, the conflicts between the resettled villagers' demands and the government's intention cannot be reconciled through spatial transformations but are intensified in a concealed manner. Lacking collective efforts, the resettled can hardly claim their rights over the resettlement, as well as the space of CRCs. Such differentiation among CRCs across time calls for tailored strategies to facilitate the resettled villagers' citizenization. For example, in early CRCs, employment opportunities and skill training should be highlighted and more community amenities for senior residents should be provided. Flexible land use regulation could enrich residents' everyday living in urban areas. In later CRCs, measures to increase community security and promote social integration within the community are more urgent.

Recent studies reported a trend of un-gating urban communities (C. Zhang & Chai, 2014; W. Zhao & Zou, 2017), which is against the government's intention of creating a favourable restrained and disciplined urban community in terms of governance and management, in hopes of improving the urban aesthetic and escalating land prices. Policy on community governance often ignores the spatial-temporal heterogeneity of diverse urban communities, especially CRCs whose inner governance is not fully integrated into the urban system due to the village collective at play. The more complicated relationship among residential committees, homeowner associations, and property management companies may pose further challenges to neighbourhood governance in urban China (see Z. Wang, 2022). Recently, the trend towards more rigid control over gating is endemic in our cases, especially for the new CRCs and during the COVID-19 pandemic. Our observations suggest the government has reinforced community governance through techniques that were designed for controlling the outbreak, including grid governance, access control system with face recognition and temperature detection, and volunteer system that mobilizes local residents to conduct self-governance, e.g.,

garbage classification. Although such techniques are not the natural state of space production, whether such imposed measures could exert temporary or permanent influences on resettled villagers' post-resettlement adaptation merits long-term observation. The physical environment is more policed and the spontaneous building is no longer tolerated given the state ownership of urban land. (M. Zhang et al., 2018) and the social conflicts manifest themselves in the form of urban informality even with clearly defined property rights in urban China (P. Zhao, 2017). The state mode of production (Wilson, 2013) that produces abstract space is thus challenged by the everyday life of the resettled villagers in CRCs. The solution lies in the hand of the resettled villagers to regain the centrality of resettlement to claim their rights over 1) the appropriation of space of host communities/societies and 2) the participation in the resettlement process in the first place (J. Qian & He, 2019; Schmid, 2012; Tayebi, 2013). However, as our data suggest political inclusiveness of resettlement remains problematic. Since there is a lack of inputs from local cadres in our research, our findings may be lopsided. However, our findings echo many prior studies' findings that the politics of resettlement in Asia is inadequately addressed in existing policies (Price, 2019), which is attributed to the conventional technocratic and managerialist approaches that resettlement projects adopt (Wilmsen & Webber, 2015b). The state's dominance over all important decisions from planning to compensation is another contributing factor (Phuc et al., 2014). In addition to these observations, our findings foreground the space as another important medium in analyzing this pressing issue.

Through the examination of space production in Hangzhou's CRCs, we should consider once again the conceptual framework proposed earlier, especially regarding how to understand the temporal perspective of space production. The temporal perspective in this dissertation does not focus on the production of specific space (e.g., one specific CRC), but considers the production of different CRCs as a continuum, which also includes future production of CRCs. In this sense, although the production of a particular CRC can take quite a long time considering the planning, implementation, negotiation, construction, and post-resettlement adaptation processes, it should be regarded as a specific element of the continuum rather than the continuum itself. It is therefore essential to take into consideration of the temporal context of the three moments of Lefebvre's conceptual triad in interpreting the process of space production. In this dissertation, we use the three CRCs that are produced at different times to show how temporal-specific interactions between peoples' social relations and the imposed spatial planning can produce different spaces in CRCs. While rural-to-urban resettlement has been promoted

in China for a long time, villagers' changing spatial practices and the government's evolving planning together create diverse CRCs.

In our case, since the three CRCs are resettled at different times, villagers adapt to urban life very differently. This is reflected particularly through their employment choices and ways of making a living. Meanwhile, the government-led planning of resettlement communities also changes among the three typologies identified. On the one hand, the state mode of production and the urban governance deployed by the local government aims to subsume villagers into the urban system. On the other hand, resettled villagers especially those in early CRCs seek to reconstruct their erstwhile rural society. The mismatch between the two and the social contradictions creates distinct representational spaces. The spontaneous spatial transformation shows the resilience of resettled villagers in face of government' imposed spatial planning, which reshapes the top-down created CRC into a lived space. On these grounds, a nuanced understanding of resettlement and its space production process from a temporal perspective is instrumental for targeted post-resettlement adaptation and neighbourhood governance policies. Although the above knowledge is informed primarily by Hangzhou's case, it has broader theoretical and practical potential, especially when it comes to achieving inclusive post-resettlement adaptation. More importantly, the temporal perspective of space production theory can be useful in understanding the specific planning, implementation and post-evaluation of a resettlement project with a long-time horizon.

3.7 Conclusion

This research aims to introduce the phenomenon of rural-to-urban resettlement in China and unpack the space production process . In doing so, we first invoke planetary urbanization to contextualize rural-to-urban resettlement and reiterate the notion of urbanization through resettlement. Yet, the theory alone is unable to capture the driving force of state and the space production process as a spatial-temporal continuum. On this account, we revisit Lefebvre's theory of space production and pay special attention to the theory's explanatory power of the state's role in and the temporal perspective of space production. This research fills the gap in the application of the theory in previous studies. It adds a dynamic and temporal perspective to the conceptual triad of space production and captures the variations of the totality constructed upon the three moments. It shows that even for a specific form of space, like CRC in this dissertation, the production process is diversified by the changing spatial practice (e.g., social demands and relations) and the representation

of space (e.g., planning and governance). Second, the empirical case of CRCs in Hangzhou deepens our understanding of how China managed to sustain its rapid urbanization and economic development through resettlement. Given that Hangzhou often serves as a role model for China's urban-rural development, this research can provide new insights into urbanization and rural development in Asian countries as well as the global south. The heterogeneity of CRCs and the adaptation process of the resettled villagers in Hangzhou's CRCs remind scholars and practitioners of some important contributors in achieving inclusive resettlement.

This research finds that CRCs in Hangzhou can be subsumed under three typologies and the adaptation process of the resettled are distinctive in different CRCs. Resettled villagers in early CRCs are mostly confronted with economic challenges but maintain well social relations. Their persistent rurality, especially the shared social relations and collectivism, is conducive to their spatial adaptation. In recent CRCs, although the resettled villagers have been exposed to the urban society long before their resettlement, their excessive expectation undermines their overall assessment of the resettlement project. When faced with economic and social disturbance, they often fail to make collective efforts in response. The strict planning and community management have further limited their spontaneous attempts in reshaping space to support their adaptation. Without possible outlets, the intensified social tensions are becoming threats to sustainable urban development and social stability of urban China. While such findings can shed light on how government-led urbanization through resettlement unfolds in China and how resettled villagers passively and actively adapt to the process, further generalization of such implications on policy reform nationwide should be viewed with caution. As Hangzhou is a developed megacity located in the coastal areas, the lessons may not be applicable to other cities, especially those small and medium-sized cities in western China (see Qian and Xue, 2017). However, since Hangzhou has always been a pioneer in land-use reforms in China, the findings of this research will have effective policy implications.

The findings have policy implications. First off, in the context of China's promotion of micro development policies such as urban-rural integration and rural revitalization, creating inclusive resettlement for landless villagers is integral to China's sustainable urbanization. Although our findings are based on a case study, it showcases how the most developed regions in China deal with rural-to-urban resettlement projects. Hangzhou city and Zhejiang province are famous for piloting China's rural reforms, and the recent designation of establishing the "common prosperity zone" by the national government has attracted international attention. Our findings challenge the longstanding

urban-biased development mode for the rural population and point to the necessity of accommodating rural residents' spatial practice in government-led space production through resettlement. The inclusive resettlement should not confine to landless farmers' resettlement to urban areas but should attend to their choice over their ideal development path. In other words, they should have both the right to the city and the right to the countryside. As Hangzhou is proactively mitigating the urban-rural disparity under its Rural Revitalization Strategic Plan (2018-2022), advocating a two-way flow of population by improving transportation infrastructure and developing e-commerce could potentially address the employment issue for current and future resettled villagers. Second, resettlement policy reforms in China have paid excessive attention to the economic enhancement of resettled villagers through compensation (Z. Qian, 2015a), but less effort has been made to promote public participation in resettlement, although it has been widely used in China (J. Li et al., 2021). This research highlights that the political inclusion of the resettled in resettlement projects should be prioritized. This should go beyond the "tokenistic rather than meaningful participation" (Wilmsen & Webber, 2015b, p. 78). As highlighted in previous sections, the social contradictions between villagers and the imposed urban form and governance structure are major obstacles to inclusive resettlement. The lack of effective communication between villagers and the government should be addressed by further resettlement policies. While the collective economy provides an avenue for resettled villagers to benefit from their collective land, the shareholding is under criticism as villagers are restricted to exercise rights through agents (Kan, 2019). Further reform on the collective economy to incorporate villagers as stakeholders in economic decision-making is needed. Third, the technocratic planning and designing of CRCs should be improved to cater to the demands of the resettled villagers. Recently, there has been a mushrooming of online reports featuring newly built CRCs in Hangzhou as "the most beautiful resettlement communities" (Hangzhou Daily, 2022a). However, such descriptions focus only on the aesthetically-appealing appearances of the CRCs and ignore that CRCs are socially produced space for resettled villagers. The high-density gated community with inaccessible green spaces while being applauded in urban areas may not be ideal for the newcomers. In Hangzhou, private developers like Greentown China have collaborated with the government in developing CRCs since the inception of RVER in 2005. The developers' commodity-oriented development mode also poses challenges to meeting resettled villagers' spatial demands. Resettlement policies should also incorporate planning and design guidelines to regulate developers' arbitrary development practices.

Chapter 4
The complexity of property rights embedded in the rural-to-urban resettlement of China: a case of Hangzhou

4.1 Introduction

Property rights regimes and property market governance significantly influence urban growth. Political philosophers have laid theoretical foundations for property rights and ownership, paying special attention to the limits and justification of property (Dodds, 2001). The historical shift from feudalism to democracies in Europe has foregrounded the theoretical debates on the justification of property rights, which generates various theories, including natural law theory and labor theory (Locke, 1961; Mill, 2018), labor and desert theory (L. C. Becker, 2014), utility and efficiency theory (Mill, 2018), personality theory (Radin, 2009), political liberty theory (L. C. Becker, 1980). Such justifications, while highlighting the merits of private property rights, pays inadequate attention to the inner crisis of the capitalist production system the property rights system rests upon. Antiproperty arguments, particularly the Marxist critiques, hold that private property inevitably leads to social inequality through the exploitation of workers' labor power and alienation (Dodds, 2001). Property rights systems are therefore closely related to their economic, social, and legal dispositions, which necessities specific justifications for various economic systems beyond the general justification from the perspective of private property rights. China offers a unique laboratory for fermenting new theories given its distinctive socialist market economy and neoliberalism with Chinese characteristics at play (Peck & Zhang, 2013). More importantly, the role of planning instruments in justifying for China's property rights system enables a critical evaluation of the relationship among state, market, institutions, and the tensions between socialist and liberal political societies.

Central to the debate on property rights in China is the interplay between public ownership and private ownership and the coexistence of market and central planning mechanisms (Slaev, 2020; M. Zhang, 2008). Since the economic reform, the monopoly of public ownership has dissipated, and the co-existence of multiple ownership has become the new normal. As both a developing country and an authoritarian state, China witnessed extensive debates on property rights, especially the politics and the evolution path of China's land system (Qiu, Ma, et al., 2021; M. Zhang & He, 2020; Y. Zhang, 2021). What complicates the discussion is the selective enforcement regime of land property rights in

urban and rural areas (M. Cai et al., 2020). The longstanding ambiguous property rights of rural land have been the subject of heated debates, focusing on land titling (M. Song et al., 2020), land marketization (R. Wang & Tan, 2020a, 2020b), informal housing market (S. He et al., 2019; Lai, Zheng, et al., 2017), and compensation justice (Z. Qian, 2015a; Y. Xie, 2019), to name a few. In this context, addressing the ambiguity issue has become a primary concern for China in its promotion of new-type urbanization and rural-urban integration (K. Chen et al., 2020b; M. Chen et al., 2016, 2019).

Rural-to-urban resettlement is integral to the urbanization of land and population (C. Yang & Qian, 2021). While prior studies highlight the concomitant physical and socio-economic transformation of RUR, few have unpacked the property rights reassignment embedded in the process (except for Huang & Chan, 2018; Z. Qian, 2022; Shin, 2013). In most cases, resettlement literature argues that incomplete property rights of rural land impede successful post-resettlement adaptation (Z. Qian, 2017; Z. Qian & Xue, 2017). The argument also holds true in China, but it neglects the complexity of property rights embedded in resettlement, and most importantly, it fails to unveil the mechanism of property rights rearrangement and how the transition affects relevant stakeholders. Rural-to-urban resettlement in China is driven by two parallel forces: market competition for land and central planning in fuelling urbanization while balancing rural development. Rural-to-urban resettlement thus serves as a government-engineered tool to mitigate the ambiguity issue associated with rural land through a "formalization" process. That is, transforming villagers' property rights (e.g., to land, housing) from rural to urban systems. He et al. (2009) captured the complex process of property rights reassignment among public and private stakeholders due to land requisition. Although land expropriation is the predominant approach to converting ownership, He et al.'s work does not account for how the ambiguity is eliminated or lessened through government-led urbanization.

The widely cited literature on property rights in planning is primarily generated from the perspective of new institutional economics, especially by holding that property rights are institutions themselves and "do not exist in an institutional vacuum" (J. Zhu, 2002). In mainstream literature, especially those adopting neoclassical and new institutional economics perspectives, the problem of ambiguous property rights often refers to collective ownership in the Chinese context (Sa, 2020). However, collective ownership should not be equated with insecure property rights in China, and on the contrary, it allows for a negotiating space for the experiment of land reforms (P. Ho, 2001) and the reorganization of power relations in local communities to manage resources (Kan, 2019). Given China's political-economic context, the ambiguity of property rights in China should be viewed not

merely as a result of the transitioning economy but as the "Chinese characteristics" of the rural land system (Hong & Sun, 2020). China's dual land ownership structure creates distinctive land markets in rural and urban areas, the latter resembling the free market in the western context. Therefore, subsuming rural land and population into the urban system is theoretically viable to gradually transform China's planned economy into a fully functioning "socialist market economy" that recognizes individual liberty and private ownership (M. Zhang, 2008). Nevertheless, as this research will elucidate, the ambiguity issue is unlikely to be resolved all at once but leads to the complexity issue which is the main concern of this research.

For a better understanding of how property rights systems change in China, it is therefore essential to follow Slaev's (2020) inquiry of how complex property rights are managed simultaneously by market mechanisms and central planning. This research draws extensively from property rights literature and is grounded upon several theoretical underpinnings. First, property rights should be perceived as a bundle of rights (Demsetz, 1974) and the rights over a resource are dividable among different stakeholders (Alchian & Demsetz, 1973). Chinese rural land is such a resource whose rights are separatable and various parties jointly possess the resource. Second, the property rights complexity is a two-dimensional construct concerning ownership structure and institutional arrangements. The complexity involves two sets of contrasting concepts: private versus collective(public) and formal versus informal (Demsetz, 2002; Deng, 2020; M. Zhang & He, 2020). Third, the politics of property rights leads to the selective protection and enforcement of property rights regimes in China (M. Cai et al., 2020). On these grounds, this research intends to shed light on the theoretical justification for China's current property rights system and unpack the complexity of property rights embedded in rural-to-urban resettlement.

This inquiry is essential to a deep understanding of how rural-to-urban resettlement as a planning tool to facilitates a (sub)optimal property rights arrangement in contemporary China by probing the following questions. How has rural-to-urban resettlement addressed the ambiguity issue, and how has it led to the complexity conundrum of property rights in resettlement communities? How have the resettlement-induced property rights rearrangements impacted resettled villagers' post-resettlement adaptation in the host cities? How do market and planning mechanisms interact amid rural-to-urban resettlement in reconfiguring property rights? The remainder of the paper is organized as follows. Section 2 discusses the theoretical foundations of property rights complexity and synthesizes the literature that captures the complexity of property rights, particularly in the Chinese context. It

emphasizes that although the debate over complexity is inconclusive, the complexity itself is justified by several theoretical ideas and should be viewed as an ontological setting and the entry point for investigating the property rights regime in China. Section 3 outlines the institutional background of property rights in rural China, which is conducive to the subsequent conceptualization of rural-to-urban resettlement from the perspective of property rights in Section 4. Section 5 introduces the research methodology. Section 6 presents the case of Hangzhou to concretize the complexity of property rights, followed by discussion and conclusion sections.

4.2 Theoretical debates of the complexity of property rights

4.2.1 Property rights theories and the justification for property rights systems

Property rights are a complex adaptive system that does not always move towards private property and adjust optimally to new circumstances (Alston & Mueller, 2015). Property rights systems/institutions are generally divided into three types: private, collective, and common property systems. According to Waldron (1985), property rights systems are systems of "rules governing access to and control of material resources" and is framed under different "organizing idea[s]." However, in real societies, property systems may involve elements from each system and thus lead to the complexity of property rights. Justification for the property rights system in democratic societies has created various theoretical accounts for property rights, including Locke-Mill version of labor theory, labor-desert version of labor theory, utility and economic efficiency theory, liberty and personality theory, and Marxist antiproperty arguments (L. C. Becker, 1980). While most of them were proposed by political philosophers, economists drew from utility theory to argue that private property systems are the most efficient way for society to achieve communal good (Dodds, 2001). The utilitarian theory claims that property institutions should be formed to maximize the net utility (welfare) of the society and thus private property is necessary to avoid externalities in using common resources such as the tragedy of commons. Yet, utilitarian theorists also note the costs associated with establishing private property rights across the board and recommend selective property arrangements in different contexts (Alexander & Peñalver, 2012). Likewise, Becker (1980) also believe while early philosophical work on property rights focuses on the general justification, specific justification for property systems of different economic system is needed.

In planning literature, property rights debates draw mainly from institutional economists' theorization and thus inherit the utilitarian perspectives. Coase's seminal papers on the nature of the

firm (Coase, 1937) and the problem of social cost (Coase, 1960) serve as the theoretical underpinnings for institutional economists on property rights. The two key concepts, property rights and transaction costs, are vital to the institutional settings and vice versa. However, theoretical and empirical contributions in this vein are grounded on the justification for private property systems and thus lead to ineffectiveness in investigating property systems that exist outside the western democratic contexts (Agboola et al., 2017; Hartvigsen, 2014; Marschke et al., 2012). In recent years, an endogenous theory of property rights or the "credibility thesis" proposed by Peter Ho (2013, 2014, 2016) has gained momentum. The theory sees institutional performance rather than the form as the determining factor of the appraisal of a specific institution and has been used to understand the ambiguity of property rights systems in various contexts (Arvanitidis & Papagiannitsis, 2020; Davy, 2018; You et al., 2022). The thesis challenges the classic neoliberal postulates that "secure, private, and formal tenure (as institutional structures) are imperative for stable development" (L. Sun & Ho, 2018, p. 892). Indeed, "when the credibility of existing institutional arrangements is found to be high or rising, condoning or co-opting could be a better option" (p. 893). In this sense, the theory offers a posterior justification for property rights systems.

Furthermore, in recent years, scholarly attention has been paid to property rights and property regimes/systems in urban development (Blandy & Wang, 2013; Davies & Atkinson, 2012). Planning scholars in particular, argue that different property rights in planning processes may lead to different urban development outcomes (Fischel, 1978). The intricate relations between the state and market from the perspectives of property rights have prompted concern, especially regarding how planning intervention can be incorporated into the process. In Coase's analysis, "any government intervention will hinder the efficient operation of the free market and will lead to inefficient allocation of resources" (Meramveliotakis & Milonakis, 2018, p. 39). However, Slaev (2016) holds that the basis of planning has shifted from public ownership to private ownership, and all types of ownership may subject to planning. As such, depending on the property rights systems, different planning, regulation, or market mechanisms can be well incorporated for social coordination. More importantly, the politics of property rights strongly influence how the state intervenes through planning, which leads to various property rights systems at play (M. Cai et al., 2020).

In real world, justification for property rights systems can hardly be obtained from a single theoretical lens, and this is especially the case for China, an authoritarian post-socialist state with a mixed economy where both private (e.g., urban housing) and collective (e.g., rural land) property

rights systems exist. This research thus builds upon previous theoretical discussions and argues that the existing system reflects China's aspiration for economic efficiency through establishing an individual private ownership system, and political imperatives to maintain its collective ownership of land in rural areas, which only leads to the functioning complexity of property rights. This research conceptualizes the complexity of property rights as a two-dimensional construct. The following literature review first examines how private and collective ownership of property rights operate, then delves into how formal and informal property rights institutions manifest in China. It argues that the property rights complexity results from China's gradualist and incremental economic restructuring towards an economic system for the utility that functions as effectively as the western market economy. Moreover, the state takes advantage of the complexity of property rights in exercising its spatial selectivity (Cheung, 2021), especially when it comes to rural-urban relations, and this does not exclusively speak to the rural side as the "deliberate institutional ambiguity" formulated by Ho (2001).

4.2.2 Private and collective property rights

Debates over property rights in China revolve around two opposing points: private and collective property rights (Deininger & Jin, 2009; P. Ho, 2001; Qiu, Ma, et al., 2021; Sa, 2020; M. Zhang, 2008), and especially concerning the ultimate question that which is better fitted for post-socialist China. Private property rights system was not officially recognized in China until 2004 when the 1982 Constitution was amended. Yet, different property rights systems on land and houses in urban and rural areas remain elusive. The assumption that clearly defined individual property rights enables economic development has enjoyed substantial popularity in the global south due to the straightforward and enticing formulation by De Soto (2000): through establishing individually titled property rights, the "dead capital" (informally owned land or housing) could be "realized, sold and/or borrowed against to invest in economic revolution" (Goldfinch, 2015, p. 87), so as to escalate personal and socio-economic gains significantly. In addition, new institutional economists draw from Coase's seminal work, holding that property rights' initial allocation determines how effectively the economic system operates (Hong & Sun, 2020; Q. Lu & Yao, 2018). Therefore, private ownership of land is theoretically superior to collective ownership in the free market since the latter could lead to inefficient resource allocation, such as the "tragedy of the commons" (Feeny et al., 1990; Hardin, 2009) and "rent dissipation" (J. Zhu, 2017). The collective land ownership in rural China has thus long been treated as the major hindrance to China's further economic development (S. He et al., 2009;

Jiao & Xu, 2021; Kong et al., 2018; Lai, Wang, et al., 2017). This issue of ambiguous property rights while being acknowledged by the Chinese central government has not been adequately addressed in policy reforms[9].

Defenders of the persisting rural ambiguity issue argue that 1) China's rural land tenure arrangement is approximately a product of conscious design by the government and is constrained efficient (Y. Cheng & Chung, 2018), and 2) well-defined property rights may not be helpful with land-related transactions because rural land in China has personal and cultural value (Hong & Sun, 2020). Supporters of the latter hold that while western understanding of landed property rights is based on the separation between the economic and social spheres (Haila, 2016), the negotiation of landed development in rural China often took into consideration of social and ethical values and the long-run harmonious development of the village. Following this line of reasoning, China's collectivist culture that still lingers in many Chinese rural areas has undermined the explanatory power of private property theorem from two primary aspects: 1) the collective rather than an individual is the major actor in economic activities, and 2) market rule is not necessarily based on equal-value exchange, at least not economically (Sa, 2020).

Furthermore, China's collective ownership is influenced by the socialist legacy of the planned economy. Different from other post-socialist countries of Central and Eastern Europe where land reform has focused on the privatization of land and housing property that was forcefully nationalized in the socialist period (Hartvigsen, 2014), China's land reform take on two distinctive paths in urban and rural areas. The state holds both the legal aspect (through nationalization) and economic aspect (through the redistributive economy) of property rights over urban land during the socialist era and appoints SOEs (work units) as agents to navigate and orchestrate urban development (Z. Qian, 2015b). Although the state still owns all urban land, urban China has embraced a rather open and legal institution of securing private property rights for urban residents, especially on housing (P. Ho, 2017; Shin, 2013; Y. Wu et al., 2017). In contrast, rural residents are still plagued by the longstanding collective ownership that was established in 1958 when the People's Commune was introduced,

[9] One of the most important recent reforms is the three rights separation (see No.1 document of Central Committee of 2014). No.1 document of Central Committee" has become a term that refers to the document that exclusively deals with rural issues.

although there have been many reforms (Z. Qian, 2015a; Q. Wang & Zhang, 2017; Y. Zhou et al., 2020).

While Demsetz (2002) had long investigated the historical competition between private and collective ownership, China offers a new laboratory for the fermentation of new discussions. Then, what institutional arrangement of ownership works for China? This dissertation concurs with the credibility thesis and argues that the hybrid form of property rights institutions is the suboptimal solution for managing land resources in China. In other words, although the property rights institution in China was found "imperfect, inefficient, or second-best," it is "optimally adapted to the *then* existing conditions" (Y. Zheng & Ho, 2020, p. 2). The credibility thesis, therefore, focuses on the function rather than the form of institutions. Going by this reasoning, the co-existence of collective ownership of land and private ownership of housing is resultant from historical, economic, and political choices. The socialist legacy of collectivism and the economic drivers of promoting private property rights are balanced through the government's deliberately engineered development regimes in both urban and rural areas. It is worth noting that although the credibility thesis help address the concern of why the hybrid mechanism of property rights prevails in contemporary China, a further explication of how the mechanism functions is needed. In this sense, the dissection of how private and collective property rights systems combined reinforces China's urbanization, and development should be prioritized in relevant inquires.

4.2.3 Formal and informal property rights

China is not only an intellectual battleground for the opposing terms of private and collective property rights but one for formal and informal property rights institutions. The latter relates to the enforcement apparatus of property rights, which has garnered increasing attention to unravel how different forms (formal vs. informal) of enforcement impact the implementation and the consequences under the property rights arrangements (M. Cai et al., 2020; A. Jiang & Wang, 2021; Z. Qian, 2022; L. Sun & Ho, 2018). Considering China's distinctive political-economic climate, the unpacking state's role is at the crux of capturing the legitimacy of either formal or informal property rights institutions.

Formal property rights, especially private property rights in western economies, are regarded as a remedy for complex land issues that hinder economic development in developing countries (Lawry et al., 2017; Goldfinch, 2015). However, land tenure informality is a common phenomenon in

developing countries in the context of weak land governance institutions. It is estimated around 75% of the world's population has no access to avenues to formalize their land (Y. Cai et al., 2018). As suggested above, formal tenure is not necessarily the only way out. Goldfinch (2015) noted that informal, traditional/customary and communal rights are also viable in certain contexts. The existence of informal institutions embedded in formal institutions has been a common and continual phenomenon since Adam Smith, and informal institutions often complement formal institutions in practice. Webster et al. (2016) aptly argued that formal and informal institutions are not polarized but should be viewed as an idea of differentiated degrees of property rights.

China's rural society was dominated by the "difference order pattern" (*cha xu ge ju*) (Barbalet, 2020; Fei et al., 1992b; Qiu, Zhang, et al., 2021), which relies on social networks rather than market logic in allocating resources. In theory, private property rights are likely to convert interpersonal trust (social trust) to contract-based trust, compared with collective property rights. The latter is also related to institutional trust, which indicates confidence in formal institutions. The informal land institutions, for instance, the customary rights widely practiced worldwide (Lawry et al., 2017; Toulmin & Quan, 2000), question the sole perspective of championing private property rights of the land, especially in China where land is not only an economic asset but also a relational asset (Qiu et al., 2018). The informal institutions thus still play an irreplaceable role in regulating human behaviours because of the huge potential costs associated with implementing formal institutions. Moreover, those who are used to informal institutions may find formal intervention problematic since in many cases, it leads to the dispossession of the affected (Bouwmeester & Hartmann, 2021).

The socially constructed property rights in rural areas have manifested in the form of small property rights housing (SPRH) in urban China (M. Zhang & He, 2020). Sun and Ho (2015) identify three forms of SPRH, including housing: 1) built on villagers' homestead land, 2) built on rural collectively owned construction land, and 3) farmland (which is much less common in reality). Prior studies have made a consensus that legal titling does not necessarily influence people's purchase decisions, behaviours, and daily lives in the SPRH community (S. He et al., 2019). In conceptualizing the drivers and reasons for informal development/housing, Zhao and Zhang (2018) point out that informal development/housing is closely related to suburbanization and is concomitant with "depoliticization, liberalization, and privatization in the context of economic transformation and globalization" (p.131). To quote De Soto (2000, p.14), the informal economy is "the people's spontaneous and creative response to the state's incapacity to satisfy the basic needs of the

impoverished masses." In light of this, China's SPRH and informal development of rural land in broader terms are such a response to the grim situation of insufficient affordable housing for urban residents, which reflects the state's inadequate treatment of this issue. According to a recent survey by the Ministry of Housing, Rural and Urban Development (MURUD), only 2.1% of migrants were accommodated in Public Rental Housing in 2018, making the issue extremely perplexing (Tian et al., 2020).

Prior literature reminded us that the Chinese state leverages the formal and informal divide in exercising its spatial selectivity (Cheung, 2021). Cai et al. (2020) make this point very clear that the state does not necessarily have the incentives to establish institutions that encourage production and exchange, including private property rights. Current China serves as an example of autocratic commitment to market institutions partially because of its decentralized political structure. The intentional selective enforcement regime favors land developers at the expense of farmers. Land property rights in urban areas are clearly defined in contrast to the development of property rights to rural land. Deng (2020) believes that informal institutions can be a state product to further state interests since it can be 1) a form of the experiment of institutional innovations, 2) associated with preference for ex-post bargaining, and 3) an instrument for state power. The idea derives from the notion of 'path dependence' (North, 1990) and institutional stickiness (Boettke et al., 2008), and argues that before new institutions succeed, they are in a less permanent mode, a transitional mode. In the context of China's 'experimental governance' (Schoon, 2014), the institutions that are defined and enforced by the state can also be informal institutions as long as they are less codified, less permanent or less clearly defined. The predominant role of the state in the production and maintenance of informal institutions (Roy, 2005) coexists with individual's spontaneous response to an overly regulated economy and an inefficient state (Kudva, 2009) in China. It is therefore essential to add knowledge in this regard to shed light on how formal and informal property rights arraignments interacts and are employed by the government in China's urbanization through rural-to-urban resettlement.

4.3 The institutional background

Before delving into the resettlement case, this section revisits the institutional changes of property rights in rural China. Although the urban counterpart also went through various stages of reform, it is less intricate than the rural section (for urban reforms, see Clarke, 2018; Ma, 2002; J. Zhu, 2002). The

three aspects of change are conducive to a deep understanding of the conceptual framework proposed in the next section. The rural land reform is underpinned by the concept that property rights are a bundle of rights, where different types of rights are separable (Demsetz, 1964). The rights over farmland, collective construction land, and homestead land are treated differently. Figure 4.1 shows

Figure 4.1 The mixed land use in rural areas in Zhejiang province.

Notes. The low-rise houses are villagers' houses built on collective non-profit construction land (homestead). Most of the green land is agricultural land (farmland). The black and white box-like buildings in the distance are factories built on rural collective operated construction land (rural business construction land). Source: authors' collaborator.

the mixed land uses in rural areas.

Before the establishment of the collective land ownership regime when the People's Commune was promoted nationwide in 1958, the rural land was *de jure* private property that belonged to farmers. After entering the era of rural collective ownership, the rural land is strictly prohibited from free transfer given the communist ideology and authoritarian management system. The turning point came in 1978 with the establishment of the household contract responsibility system (HCRS). Since the contractual operation right is independent of land ownership, the right to rural land has been divided

into use and ownership rights. While rural land ownership has been fixed since then, the ambiguity of use rights has continued, especially after the 2014 reform of the three rights separation. As noted by Dong (2019), China's rural land rights have gone through a process from the unification of two rights to the separation of two rights and the latter to the separation of three rights. The rural land transfer in China, therefore, involves the transfer of three distinct types of land, namely agricultural land (farmland), rural collective operated construction land (rural business construction land), and collective non-profit construction land (homestead).

After the "separation of three rights" in 2014, the farmland operation right has become the subject of farmland transfer, which has three characteristics, including "the use by individuals, free transfer by individuals, and that the transferred income is enjoyed by individuals" (Q. Wang & Zhang, 2017, p. 113). These features that successfully define property rights facilitate the reduction of transaction costs, leading to effective rural land resource allocation. The latest official document, *Opinions of the State Council of the Central Committee of the Communist Party of China on maintaining stable and permanent land contracting relations,* was issued in November 2019, aiming at sanctioning and endorsing the extended farmland transfer after the due date of farmers' existing rural land contracts that are supposed to terminate onset from 2023 to 2028. It is reported that 30.4% of contractual rural land was transferred in 2014, and this number rose to 35% in 2017 (People, 2017), which indicates a large proportion of farmers either migrate to urban areas as a "floating population" (F. Wu & Logan, 2016) or become part-time farmers whose income primarily comes from employment outside agriculture. These trends incurred misallocation of rural land resources, generating phenomena such as the abandonment of agricultural land, hollowing villages, and urban-rural income disparity. Not surprisingly, a new round of radical reform is bound to happen due to the new *Decision of the State Council on the Authority to Authorize and Delegate Land Use Approval,* which, for the very first time, lifts the restrictions on the conversion of arable land to construction land. Future lessons will be drawn from the implementations and implications of the pilot projects stipulated by the Decision.

In 2004, for the first time, the central government legalized rural construction land (RCL) transfer in *Decision of the State Council on deepening the reform of strict land management,* which is followed by "equal rights with the state-land" sanctioned in 2008 and "acceleration of integrated urban-rural land market" in 2012. Consensus has been made among scholars that "unified land markets" announced in the 18th Central Committee of the Communist Party of China signifies the strong intention of the Chinese government to deepen reform on liberalizing urban-rural land

transfers. Subsequently, among 33 designated pilot districts at the county and municipal levels, 15 pilots concerned RCL, including Daxing, Zezhou, Haicheng, Jiutai, Anda, Songjiang, Deqing, Longxi, Changyuan, Nanhai, Beiliu, Wenchang, Dazu, Pidu (Pixian), and Meitan. Preconditions are applicable to these pilots that transferable land: 1) must be industrial, commercial and other operational patches in the master plan; 2) must be legally registered collective land; 3) shall be strictly subject to the function defined in the master plan; and 4) equal to state-owned land (J. Gao et al., 2020). The landmark of marketization of RCL comes with the new revised *Land Administration Law* introduced in 2020. The new law removed former Article 43 that requires all urban constructions must use state-owned land and added new Article 63 that sanctions the marketization of RCL in forms of conveyance and lease, and the transferred use rights can be transferred, exchanged, contributed, donated or mortgaged in the secondary market. The influence of this milestone is profound and far-reaching, signifying China's persistent attempts to deal with three rural issues (*sannong wenti*). As put by Gao et al. (2020), the direct entry of RCL into the land market without being converted to state-owned, the new move "completely releases the resources and asset potential of collective construction land" (p.3).

Homestead land first received academic and policy attention in 1986 when *the Land Management Law* was enacted (X. Lu et al., 2020). Since the 1980s, there emerged problems with the effective utilization of homestead land: migrant workers leaving their homestead land idle in the countryside, and the endemic "one household with multiple homesteads" issue due to the ineffective quitting mechanism. *The Property Law of the People's Republic of China* (2004) proposed the transfer of the land use rights of homestead, which legitimized the marketization of homestead land use rights. However, this proposal was put on hold in the new revised *The Property Law of the People's Republic of China* (2007), which leaves room for further reforms. Nonetheless, the same law specified the usufruct rights associated with homestead, albeit incomplete. Most importantly, urban residents are prohibited from purchasing rural homesteads. The well-known phenomenon of small-property housing emerged in this context. In 2013, the *Decision on Major Issues Concerning Comprehensively Deeping Reform* clearly defined the farmers' housing property rights and inaugurated a series of policy reforms of homestead land. Pilot modes such as exchanging a homestead for an urban apartment, double abandon, and land ticket are among the successful attempts (Kong et al., 2018). The then Ministry of Land and Resources designated 15 pilot counties (cities and districts) to conduct reform trials of the homestead system, and the list was later expanded to 33.

While *the Opinions of the Central Committee of the Community Party of China and State Council on Implementing Rural Revitalization strategy* (2018) stated that "the farmer house property rights for homestead should be ensured," the legacy issue regarding homestead land (use rights) transfer remains unresolved.

4.4 Conceptualizing resettlement from the perspective of property rights

This section conceptualizes state-led rural-to-urban resettlement in Chinese cities. This redistribution mechanism of property rights complements He et al.'s (2009) capture of the institution of property rights rearrangement through the land requisition. Figure 4.2 shows the change in property rights of the resettled villagers. Two significant transitions feature the state-led process: becoming urban residents with urban hukou status and relocating from villages to urban communities both physically and administratively. The resettlement involves a simplification of the ambiguous bundle of rural property rights to rather clear-defined property rights of housing in urban China (Y. Zheng & Ho, 2020). Through land requisition, villagers' rights over farmland are converted to monetary compensation and social security based on the land's underappreciated value of agricultural production. Villagers' rights over collective-owned construction land are transformed into the form of shareholding of the collective-retained land that belongs to the shareholding economic cooperatives established through collective economy reform. Both changes involve the realization of the partitioned property rights' value instead of the exchange or formalization of property rights. In contrast, the property exchange facilitates the equalization of rights over homestead land and the less controversial property rights of urban housing. Rural-to-urban resettlement thus serves

multifunctional tools of the state, aiming primarily to 1) urbanize rural population and land and 2) address the ambiguity issue of rural property rights.

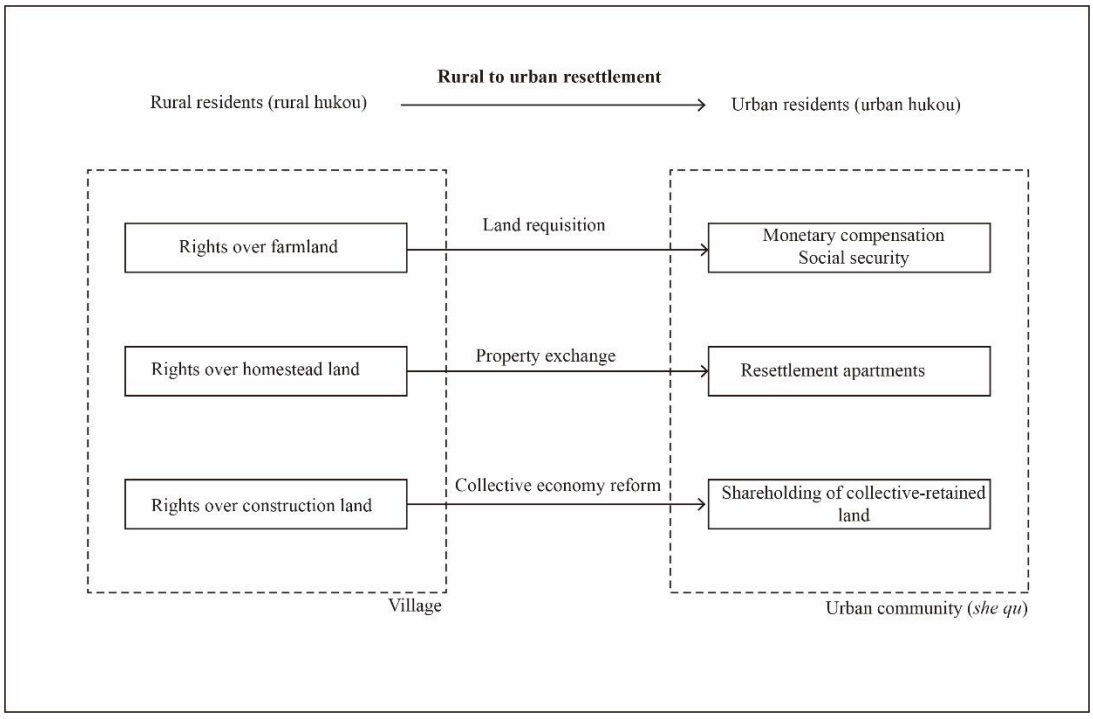

Figure 4.2 The property rights rearrangements through rural-to-urban resettlement.

Notes. This framework is generalized based on our case and thus it is a simplistic representation of the process. The dashed square indicates the administrative structure. Left: village. Right: urban community (shequ).

However, the reality of the resettlement projects often deviate from the ideal path, and the property rights transition is fraught with complexity. Figure 4.3 captures this complexity. Based on previous discussions on the complexity of property rights regarding ownership and institutional arrangements in China, we place the rural-to-urban resettlement in the two-dimensional system of transition. The horizontal axis shows the transition from the property rights system based primarily on collective ownership (e.g., land and housing in rural areas) to that based on private ownership (e.g., housing in urban areas).

The four quadrants each represent a specific property rights arrangement. The rural-urban border (dashed line) further divides the system, which leads to a subdivision of Q2 and Q4. Such divisions indicate the fragmentation of property rights during resettlement.

Despite its ultimate goal of integrating rural villagers into the urban property rights system, which is characterized by state ownership of land and private ownership of housing, rural-to-urban resettlement is frequently accompanied by temporary property rights arrangements. Q1 indicates the situation where villagers can have private ownership of housing in cities after property exchange. Slaev's (2020) concept of private-common property rights can facilitate our understanding of Q2-1: in urban areas, "one unavoidably shares with one's neighbours and local residents resources" (p.207). Q2-2 is considered a form of economic self-governance of villagers but its effectiveness is constrained by cadre power (Kan, 2019). Q3 suggests that buildings and constructions built on collective rural land were excluded from the urban property market, and thus, trading villagers' property rights over them outside the rural system is regarded as informal. Q4-1 has been regarded as a form of urban informality (W. Zhao & Zou, 2017) where informal space transformation was conducted in villagers' private housing. Q4-2 represents the small property housing issue where the houses are *de facto* privately owned but are deemed informal, which has already been extensively investigated. Regardless of the ownership structure and institutional arrangements, property rights are used to achieve effective management of resources. While the farmland is under strict budgetary control by the red-line policy[10], RUR intends to promote the effective allocation of both rural homestead land and rural construction land. In theory, the improved efficiency will lead to benefits enhancement and cost reduction for individuals in market operations. However, whether this

[10] In 2006, the Eleventh Five-Year National Economic and Social Development Guideline officially included the '1.8 billion mu farmland preservation' policy, also known as the 'red-line' policy. The Third National Land Use Master Plan for 2006–2020 set the target that the national stock of farmland must be remained at 1.81 billion mu in 2020.

theoretical assumption applies to the resettled villagers in urban China remains obscure, which is the primary focus of the next section.

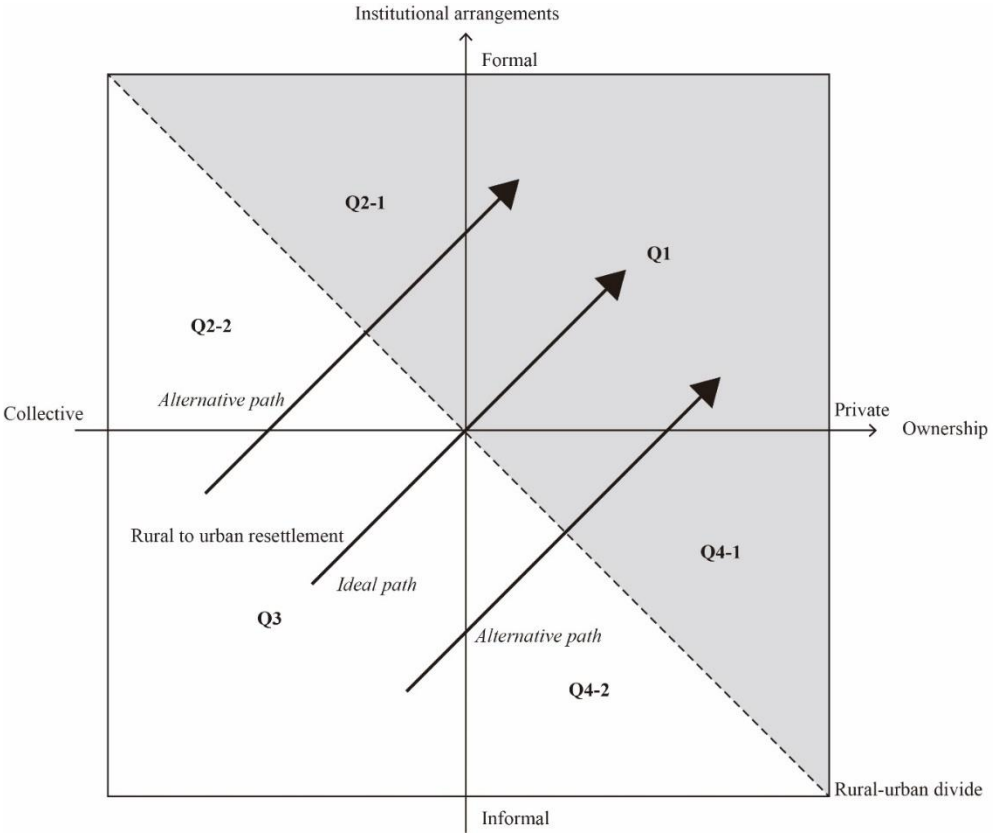

Figure 4.3 The two-dimensional construct of the complexity of property rights embedded in rural-to-urban resettlement.

Notes. This framework is generalized based on our case and thus it is a simplistic representation of the process.

4.5 Research Methodology

This research uses the empirical case of Hangzhou to present the property rights complexity embedded in rural-to-urban resettlement (RUR). Hangzhou is among the most developed regions in Chinese coastal areas and has a high urbanization rate of 77% as of 2019. The city's economic development has benefited from various land-related policies (Hui et al., 2013; Wei, 2012) and the long tradition of rural economy (Z. Qian, 2015c). Hangzhou's development through urban annexation led to many rural-to-urban resettlement projects. This dissertation examines the resettlement projects in Hangzhou's Economic and Technological Development Zone (ETDZ) in the Xiasha subdistrict. From 2002 to 2017, a total of 12 villages are resettled. This research adopts documentary analysis and

a qualitative case study as research methods. Village-level data was collected from government policy documents, media news, published papers, semi-structured interviews with expert interviewees (N=3), and field observations in the 12 resettlement communities (Figure 4). Resettled villagers' data was gleaned from both semi-structured interviews (N=12) and questionnaire surveys (N=168) with resettled villagers during a few fieldtrips to three selected resettlement communities in 2021 (see figure 5 and supplemental materials). It is worth mentioning that the population of resettlement communities ranges from 300 to 2000, and thus the sample size would range from 168 to 322, using a confidence interval of 95%, a margin of error of 5%, and a sample allocation ratio at 0.5. Although our intention was to collect as many samples as possible, the final sample size (168 valid ones among 192 collected) is affected by the followings. First, in many resettled villagers, tenants tend to outnumber resettled villagers, which makes it hard to identify suitable participants. Second, since we approached potential participants randomly in public spaces during the daytime on weekends, as

suggested by previous studies (W. Wu et al., 2019), a portion of potential participants may be unintentionally excluded. Additionally, time and manpower constraints are other contributing factors.

The research process consists of four main stages. In the first stage, after a thorough examination of existing literature and relevant policy documents, a preliminary visit to the 12 resettlement

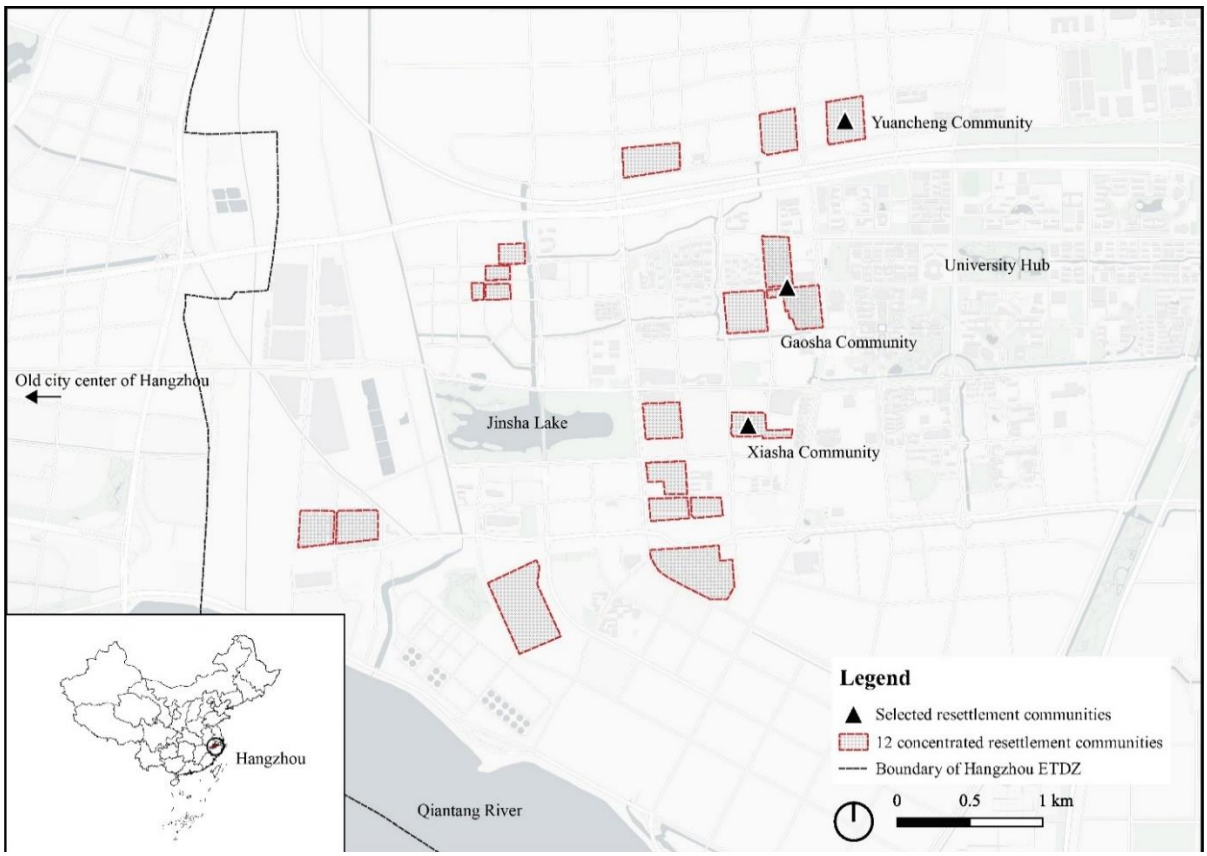

Figure 4.4 The 12 concentrated resettlement communities of ETDZ and the three selected communities

communities were performed in July 2021 assisted by collaborators from local universities. Photos, audio and video recordings, and fieldwork notes derived from this stage were coded for thematic analysis using Nvivo software (Woods et al., 2016). In the second stage, semi-structured interviews with experts and local residents were conducted to deep our understanding of resettled villagers' adaptation process and how various property rights arraignments are linked to the process. The expert interviewees are recommended by the local collaborator who is specialized in resettlement projects in a local university. The expert interviews were held mainly through online meeting platforms, such as Zoom, Dingding (Chinese version of zoom), and other applicable applications, while villager

interviews were conducted in-person. Each interview session lasted for 30 to 40 minutes. The interview consists of two parts: in part 1, interviewees are invited to discuss resettlement and property rights openly from their perspectives, and in part 2, interviewees are expected to answer several structured questions such as “based on your professional experience, can you share your thoughts on landless villagers’ adaption process to urban life in resettlement communities?” and “does property rights matter to resettled villagers?” For local villagers, the questions include “are you aware of your property rights, and what are they?” and “what kinds of compensation did you receive for your resettlement and are they enough for your post-resettlement adaptation?” The interview transcripts are also imported into Nvivo for further thematic analysis. Inputs from experts and local villagers also facilitate the refinement of the questionnaire design. In the third stage, large-scale questionnaire surveys were conducted in selected resettlement communities in September 2021. The questionnaire includes 50 variables: the first 14 variables concern demographic information while the rest variables focus on resettled villagers’ post-resettlement adaptation process. While not all variables are closely related to property rights, the questionnaire survey results are used as a reference for some of our main arguments. Important results are presented in Figure 6. Finally, the thematical analysis and descriptive statistics were performed on the data collected. We follow Braun and Clarke’s (2006) six phases of thematic analysis and adopt a theoretical thematic analysis to identify key themes that contribute to our understanding of property rights complexity. Since property rights are more of a latent concept than a sematic one, we used more explicit codes pertaining to resettled villagers’ life experience, such as farmland, compensation, village collective, homestead land, apartment, and so forth. Afterwards, we classified such codes under the key themes related to the complexity of the property. The worked-out themes as well as the result of questionnaire surveys, serve as the empirical foundation for our analysis of the complexity issue.

Figure 4.5 The three selected communities.

Notes. 1. Gaosha community is the earliest resettlement community in Xiasha district. It is featured by low-rise buildings with small backyard court and a public space with chaotic management. 2. Xiasha community is located in the proximity to the district center. The building in the center of the photo is the community office which was designed to be a community center but latter forcefully occupied. 3. Yuancheng community is located in the urban peripheral area. The 'birdcage' landscape implies local villagers' concern over security.

4.6 Evidence from Hangzhou

4.6.1 Results from thematic analysis and questionnaire survey in brief

The promotion of rural-to-urban resettlement in Hangzhou is premised upon two conditions: the demand for developable land in urban areas and farmers' high integration into urban society. The latter points to the fact that farmers are no longer engaged in agriculture and have moved and settled in peripheral urban areas. This is partially the reason why Hangzhou city and Zhejiang province are often selected as pilots in experimenting with rural reforms[11]. Table 4.1 shows the demographics of the villagers based on the questionnaire survey. 67.8 percent of the resettled villagers have daily urban exposure before resettlement. Notwithstanding the fact that they may be familiar with urban lifestyles, their awareness of property rights is very much limited.

Table 4.1 Descriptive tables of demographic variables

Individual-level variables	N	Percent	Mean	SD
Gender	168			
Male		51.8		

[11] In June 2021, the national government designated Zhejiang to pilot policies of building "common prosperity zone" that is designed to reduce urban-rural inequality.

Female		48.2		
Age	168			
18-30		2.4		
31-60		39.9		
60+		57.7		
Employment	168			
Not employed		4.8		
Employed		30.4		
Retired		64.9		
Education	168			
Primary school & below		50.0		
Middle & high school		29.8		
College & above		20.2		
Marital status	168			
Single		3		
Married		93.5		
Household size	168			
1-3		31.5	2.2	0.61
4-5		33.9	4.4	0.50
6+		34.5	6.3	0.61
Living space (m^2)				
<100 m^2		45.8	88.5	18.7
100-200 m^2		39.3	134.9	20.6
>200 m^2		14.9	259.5	64.3
Generation(s) living together	168			
1		21.0		
2		18.0		
3		61.0		
Primary source of income	168			
Working		33.3		
Compensation		1.8		
Rent		25.0		
Pension		36.9		
Other		3.0		
Monthly income (RMB)	110			
0-999		0.9		

1000-3499		45.9
3500-4999		7.3
5000-10000		22.0
10000+		23.9
Urban exposure before resettlement*	143	
Monthly		23.8
Weekly		8.4
Daily		67.8
Commuting patterns	98	
Driving		34.7
Public transport		21.4
Others (including walking, bike, electric bike, etc.)		43.9
Commuting time	80	
Less than 15 mins		41.3
15-30 mins		32.5
30-60 mins		20.0
1-2 hrs		5.0
2 hrs +		1.3

Notes. * urban exposure measures how often villagers visit cities for economic activities, including formal and informal employment, shopping, and others.

Figure 4.6 illustrates the key themes and codes identified in the thematic analysis of the qualitative data gleaned. The codes under each theme reflect the primary issues relating to the complexity of property rights rearrangements embedded in resettlement. Overall, compensation, apartments in resettlement communities, and collective-retained land are of top priority in interpreting the complexity issue. The questionnaire survey results reveal some facts revolving around the issue. For example, villagers are less content with the compensation they received (2.95, Var035[12]) but are relatively satisfied with the social benefits they enjoy after resettlement (3.98, Var039). Villagers prefer resettlement apartments to rural housing since the former can be rented and sold freely (4.60, Var041), although they may not associate it with property rights. Although they are satisfied with the urban community environment (4.20, Var016) and urban public space (3.90, Var017), they are keen on spatial transformation of community spaces (4.19, Var046), partially because they still retain rural

[12] Please refer to the survey results table in supplemental materials. 2.95 is the Likert value mean of the variable035 (six-point Likert scale).

habits (4.18, Var024). In addition, their attitudes towards the extra income and benefits provided by the village collective are divided (3.38, Var040). To sum up, both the thematic analysis and questionnaire results foreground some critical aspects relating to the complexity of property rights, and thus the following sections detail the interpretation of such aspects.

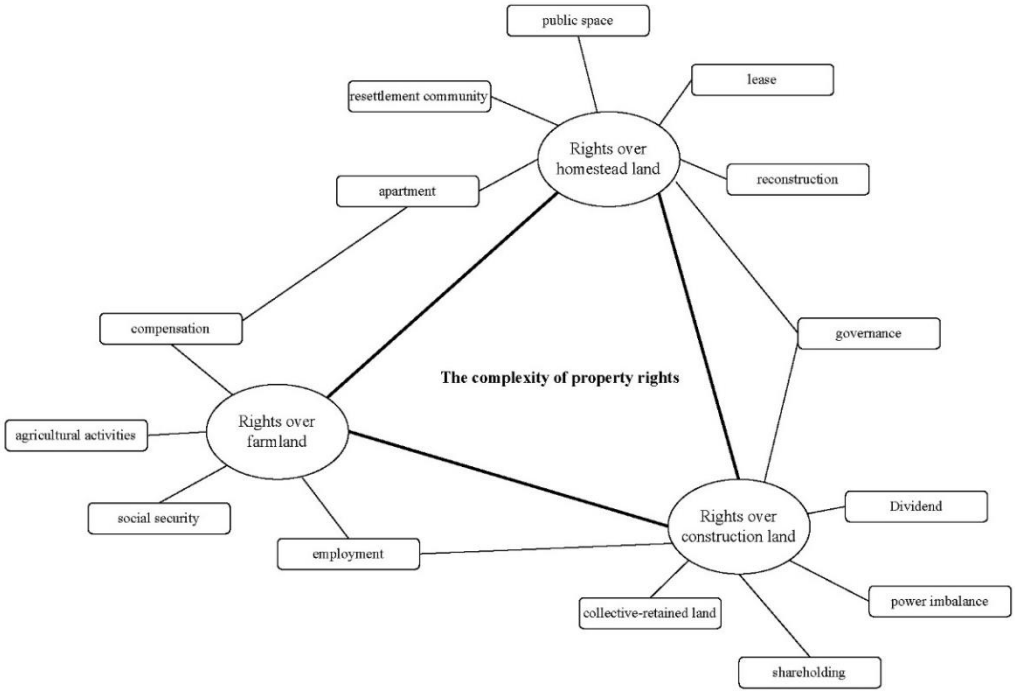

Figure 4.6 The thematic map of the complexity of property rights.

Notes. The oval represents the main theme, and the rounded square shows the sub-theme. Some sub-themes are linked to more than one main theme, such as employment, governance, and apartment.

4.6.2 Economic adaptation of resettled villagers

The Hangzhou government allows two options for resettled villagers to voluntarily cede the contractual rights over farmland: monetary compensation and social security in compliance with urban standards. Although monetary compensation standards have been improved in the last decades, many scholars believe the compensation is not necessarily sufficient in the long term (Gomersall, 2021; Y. Xie, 2019). In Xiasha, the minimum compensation is around 20,000 yuan/ 2,900 USD per mu (666.7 m^2) in 2002, and this increased to around 120,000 yuan/17,350 USD per mu in 2021. Although lump-sum money is welcomed in early resettlement projects, its disadvantages, such as

discouraging job seeking and incurring conspicuous consumption behaviors (Bao et al., 2017), render it unsustainable in the long term. As such, later resettled villagers prefer social security to monetary compensation. When transforming into urban hukou, villagers are required to pay a one-time social security fee for 15 years (at the rate of 19% of the average employee salary in Hangzhou). Yet, individuals only need to pay 30%, and the rest portion is paid by the district (40%), the subdistrict (10%), and the village collective (20%). In 2013, the total amount is around 77,178 yuan/11,170 USD for one person. In addition, local governments also encourage villagers to enroll in health insurance by covering 40% expenses on health insurance. The social security program could grant the villagers a monthly income of around 3,000 yuan/430 USD. The income, though low in Hangzhou (disposable monthly income of 5,150 yuan/745 USD per capita in 2020[13]), is a stable income means for the landless villagers who are oftentimes excluded from labor market due to age and educational attainments (see Table 2). Although it seems a fair conversion from farmland to social security, the villagers are less content with their economic status after resettlement (62%[14]). According to the villagers (Interview, 2021), living in the city substantially increases their daily expenses such as property management fees, transportation costs, and utility bills. For them, the provision of employment should have been prioritized in the compensation package, and 61.5% believe such support by government is limited. While previous research attributed the unfair compensation to the ambiguity of property rights in the rural areas that leads to the undervaluation of farmland (Qian, 2019), this dissertation argues that it is the deliberately devised regime that excludes farmers from participating in the market that undermines the proper effect of private property rights. This is especially true when it comes to the property rights of housing.

Through resettlement, villagers were relocated to the concentrated resettlement communities in host cities. Each villager is assigned a housing quota of 55 m^2, so a household of three can obtain an apartment of around 165 m^2. While the quota is less than the average rural housing floor area (75.5 m^2), it is relatively abundant compared to that of urban (39.3m^2) (Hangzhou Government, 2020). Survey results also show that villagers are somewhat satisfied with the apartment-style living in urban areas (3.82[15]). After the property exchange, villagers now have three housing rights: the ownership of the house (apartment ownership), the lease of the land (state as landlord), and the term of the lease

[13] http://tjj.hangzhou.gov.cn/art/2021/2/24/art_1229279682_3846589.html
[14] This format reports the percentage of people who agree with the survey questions.
[15] This format reports the Likert value mean of the variable (six-point Likert scale).

(70 years for residential use). The predicament, however, is that villagers are *de facto* excluded from the urban housing market due to the exorbitant housing price. From 2005 to 2021, the average housing price in ETDZ surged from 5,500 yuan/800 USD per m^2 to 26,000 yuan/3,760 USD per m^2. Without a comparable income and adequate savings, resettled villagers are determined to retain their housing instead of realizing it through trading or using it as collateral. Exceptions exist: some large size households are compensated with more than one apartment unit, and they often lease out the smaller one for extra income (3,000 yuan/430 USD per month); some who are addicted to gambling use their houses for loan sharks and end up with the loss/confiscation of their assets. Notwithstanding these exceptions, the formalized property rights did not bring out the escalation of personal economic gains, as claimed by De Soto (2000). Instead, it is observed that villagers turn to informal property rights arrangements for solutions, which will be elaborated on in the next section.

It is also necessary to consider who benefits from the property rights transition through resettlement projects. Three primary actors are involved: the local government of ETDZ, villages, and villagers. In 2005, Hangzhou issued the *Hangzhou Xisha District Land Use Plan (2005-2020)*, which set the development objectives for ETDZ as a sub-center of the City that houses industrial, educational, and residential land-uses. Since then, ETDZ has become the university town of Hangzhou and experienced a significant increase in population from 21,200 in 2005 to 117,800 in 2017 (Hangzhou Government, 2020). Urban development is fueled by the land that is primarily generated from rural-to-urban resettlement projects. Most affected villagers (81.9%) are well aware of their sacrifice and contribution and believe resettlement projects are conducive to Hangzhou's modernization and development. Moreover, the village also shared economic prosperity through the reform of the collective economy. A local scholar (professor at a local university, 2021) told us that based on their previous comparative studies, resettled farmers have a much higher income than those who are not resettled, which drives farmers on the urban fringe willing and eager for resettlement. Yet, as the foregoing makes it clear, resettled villagers are the most economically vulnerable population in cities. Our survey shows that their income level is far below the average personal income of the city of Hangzhou (around 8,300 RMB/1,200 USD): 23.9% have a monthly income of 10,000 RMB/1,450 USD or above, 22% earn 5,000-10,000 RMB/720-1450 USD, 7.3% earn 3,500-4,999 RMB/500-720 USD, and more than half (54.1%) only earn less than 3,500 RMB per month. This disproportionate distribution mechanism questions the market-oriented explanation of property rights formalization

and foregrounds the role of planning/state in the process. Subsequent sections will expand on this argument.

4.6.3 The complexity with private ownership

There is no formal housing market for villages in China, but urbanization has spawned various informal forms of housing provision, the most representative among with are small property housing and informal rental market in urban villages. After resettlement, although villagers are relocated to urban residential communities, such informality ensues. The resettlement housing in ETDZ is granted full housing property rights and the homeowners are issued with the "three certificates" – property ownership, state-owned land use permit, and the property deed – after paying one-off property tax. In 2006, the first rural-to-urban resettlement apartment is successfully traded in Hangzhou (Sina News, 2006), which signifies that resettlement housing has become an integral part of the urban housing market. However, instead of selling their apartments for a one-time income, villagers prefer the rental market as they used to do so before resettlement. The proximity to Xiasha university town introduces the studentification (W. Zhao & Zou, 2017) of local villages, which was an advantage in attracting student tenants and other inflow migrant workers for local villages. One villager (female, 56) told us,

> [b]efore resettlement, our house is large (like a single-family house) with a courtyard. We have the flexibility to partition out rooms (more than 20) for rent to college students and migrant workers. But this practice is prohibited here (in the resettlement community) because it is illegal, and the government will regularly inspect (Interview, 2021).

Although resettlement policies intend to create resettlement communities that are homogenous to urban commercial residential communities, the heterogeneity of "perceived property rights" (Kiddle, 2010) between the resettled villagers and urban residents leads to differentiated spatial representations. In an early resettlement community, villagers transform their apartment units for commercial use, such as convenience stores, restaurants, and family hotels (Figure 4.8-1). These informal commercial spaces have long been tacitly sanctioned by the local government, which even become a landmark of Xiasha district – the Gaosha food street. In addition, villagers also turned their garage space into a well-equipped small unit for lease (Figure 4.8-2). According to *Property Management Regulations* issued by State Council (Article 49), residents are not allowed to change the use of housing without permission, and the appropriation or transformation of public spaces should require the consent of the Home Owners' Association (HOAs).

The private ownership in resettlement communities is further complicated by the piecemeal privatization of Chinese urban housing (Y. Wang & Murie, 1998) and the communal space governed by the villagers collectively. The Property Law (Article 72) stipulated the partitioned ownership of common spaces, which entitles the homeowners with the power over both the use value and the exchange value of common space (Y. Zhu, 2015). As is well documented by previous research, resettled villagers often transform the lawn in communal gardens into personal gardening spaces for growing vegetables. These spatial practices reflect their spontaneous adaptation strategy to the urban environment to achieve a sense of normalcy (H. Du et al., 2021), but are replete with disputes and conflicts due to the violation of land-use rights in China (B. He & Zhu, 2018). The same is true in our case, as villagers, especially those who live in urban peripheral resettlement communities, are keen on farming. This is made possible through 1) the appropriation of public green spaces within the community and 2) the reclamation of wasteland near the community. When asked about why doing so, a villager representative explained,

> [t]his is common in the countryside. We grow our own vegetables for food. But here (urban areas), it is hard to find arable land, but we can use the communal garden as it does not belong to anyone. […] It (the appropriation of communal space) is unregulated. We heard that in some communities, the regulation is strict, but it is not in our communities. Perhaps it is because our community is too remote from the urban center" (Interview, 2021).

Communal resource management has long been problematic (Y. Zhu, 2015). China's privatization of community service delivery and the establishment of grassroots self-governance bodies like HOAs are considered potential solutions by empowering the local population's autonomy in community governance (Tomba, 2005). Yet, the effectiveness of the cooperative institutions, as proposed by Ostrom (1990) is weakened by the persistent rurality in resettlement communities, which is manifested in two primary forms: the continuity of rural habits and the quasi-urban governance structure. As figure 4.7 shows, the urban community constitutes a flat administrative and management structure, whereas the resettlement community inherits a hierarchical one from a rural village. The conflating of administrative with daily management functions undermines the effectiveness of community governance compared to its urban counterparts when it comes to the enforcement of institutions and regulations. Alchain and Demsetz (1973) argued that in a communal right system, individuals have the private right to the use of a resource once it is taken but only a communal right to the same resource, which leads to the overriding issue and the exhaustion of resources. The repletion

issue can only be addressed through 1) converting the communal right to a private right and 2) establishing effective regulation. Demsetz (1964) had long reminded us that the extent of enforcement is essential to the outcome of property rights institutions. This argument is further corroborated by the fact that in some latest communities that introduce city-standardized property management models, informal private space transformations and the inappropriate appropriation of the communal space are seldom seen (Figure 4.8-3). A local scholar who specialized on resettlement research provided new insights,

> In the past (in early resettlement communities), rural customs were brought into resettlement communities. Now (in recent resettlement communities), after incorporating these communities into urban management, resettled villagers' living behavior will be gradually transformed. In addition, the villagers have collective incentives to improve the spatial quality of the community to attract tenants at high rents. The transformation (from peasantry to urbanites) is incremental. Resettlement communities and their urban surroundings mutually influence each other (Interview, 2021).

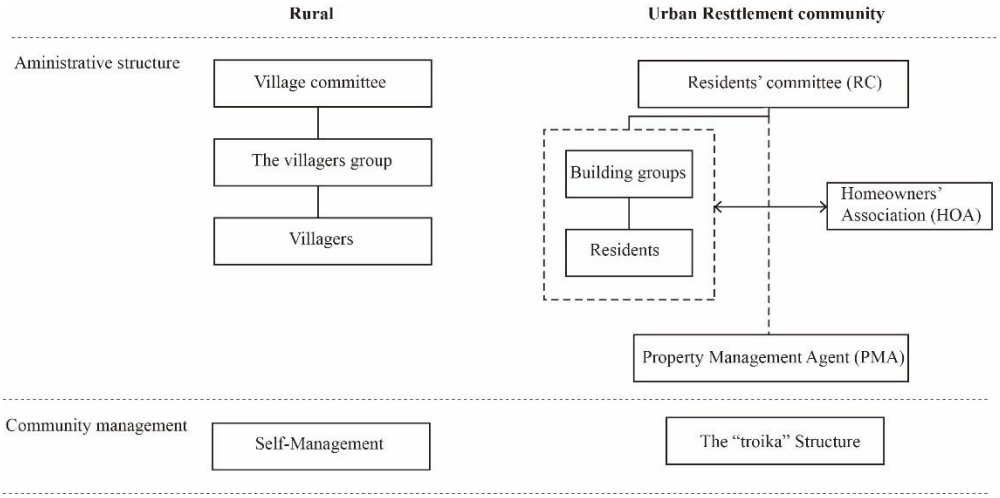

Figure 4.7 The transition of administrative and management structure of resettled villages.

Notes. RC, HOA, and PMA form a "troika" that is responsible for community regulative and service obligations in urban neighborhoods. The three parties should be parallel with each other, but in resettlement communities, both the functional HOA (dashed box) and the PMA are interfered by the RC.

Figure 4.8 Spatial representations in resettlement communities.

1. The first-floor fronts of the houses have been converted to commercial use (family hotels, hair salons, convenience stores, and restaurants). 2. The garage (first-floor) with separate door and windows are leased out. 3. A public space inside Touge community (the latest resettlement community, resettled in 2017), representing typical public space of urban commercial communities.

4.6.4 Collective-retained land

Rural-to-urban resettlement involves a collective economy reform, and the collective-retained land (CRL) introduces a formalized collective ownership through shareholding in China's urban housing market. The CRL can be state-owned or collective-owned, depending on local legislation[16]. Hangzhou introduced the CRL in 1999 as part of the compensation package. After resettlement, the rural collective could retain 10% of converted rural construction land for developing the collective economy in the city. The land was initially transformed into state-owned land through land requisition and then allocated to the village collective. This continuity of land development rights of the rural collective land is regarded as a compromise solution to preserving rural collective and individual's rights over land (Qian, 2015).

According to Hangzhou municipal government, CRL is prohibited from commercial housing development, and the land use rights are exclusive to non-rural collective developers. While the land can only be used for mortgages and guarantees for development projects of the village collective, the village can build a partnership with other investors through shareholding agreements with the condition that the village collective shall hold at least 51% of the share. However, in some cases, village collectives take advantage of the loopholes of policies to develop rent-to-own housing projects

[16] For example, in Guangdong the CRL is collective owned, while in Zhejiang and Shanghai the land is state-owned (Di, 2018).

in the name of "commercial/residential complexes" or "serviced apartments." Although this type of housing differs from the traditional small-property housing since the land is state-owned, it is still extra-legal as occupants are unable to obtain property ownership certificates. Notwithstanding this ambiguity, buyers scrambled for such projects due to their low prices (nearly half the market)[17]. This overheated informal housing market has raised the concern of the Hangzhou government. In 2009, the Hangzhou Land Bureau issued *Interim Opinions on Strengthening the Management of Retained Land in Hangzhou*, which stipulates that 49% of the project on CRL after 2010 is eligible for the three certificates while projects before 2010 are not qualified. This further clarification on ambiguous property rights relating to RCL reflects the incrementalism of the local government(Y. Jing, 2017) in promoting property rights transition through resettlement.

Table 4.2 The development projects on CRL in the Gaosha community

Types	Projects	Land coverage (m2)	Building areas (m2)	Investment (million RMB)	Annual rental (Million RMB)
Commercial real estate[a]					
	Faculty apartment[b]	15,867	30,000	20	4.4
	Commercial street	8,667	21,600	18	9.5
	Complex building	12,667	65,000	120	4.6
	Blue collar apartment	18,000	50,300	53	6.6
Social services[c]					
	Senior community center	7,337	40,000	58.5	7.2
	Apartment	12,000	46,000	78	8.0
	Office building	5,233	25,200	55	7.3
Neighborhood amenities					
	Plaza	24,567	120,900	350	8.0

Notes. a. The revenues of such developments can be redistributed to villagers through year-end dividends. b. Faculty apartments serve universities and colleges in the ETDZ. c. This type of development responds to district planning and serves as social functions. Data source: compiled from Chen (2018)

[17] Fang Holdings, one of the largest real estate internet portals in China. https://hz.news.fang.com/2010-11-25/4096140.htm

The conversion from rural collective construction land to urban CRL extends the land development rights and realizes the villagers' rights to reap income from this type of land resource. Table 4.2 lists how CRL was developed in the Gaosha community. The stable annual yields contribute to the thriving collective economy, which consequently benefits the resettled villagers. From 2002 to 2017, the income of Gaosha village's collective economy has quadrupled from around 15 million to 60 million yuan (2.17 to 8.7 million in USD). Meanwhile, villagers' annual dividends escalated from 2,500 yuan/360 USD (2004) to around 12,000 yuan/1,700 USD per capita (2020). The booming collective economy also generates employment opportunities for local villagers. However, with the gradual integration into the urban economy, local villagers are outperformed by migrant workers and college graduates from nearby post-secondary institutions. The proportion of villagers employed in community-related sectors dropped from 39% (2002) to 27.5% (2017), and that of self-employment increased from 14.7% (2002) to 39.6% (2017). Villagers are divided in their attitudes towards the benefits provided by the collective economy: 45.8% are satisfied, whereas 54.2% are not. The controversy revolves around two topics, namely whether the annual dividend is adequate and whether the redistribution is fair. According to a local villager (male, 56, unemployed),

> I receive an annual dividend of less than 10,000 yuan/1,400 USD. I have to pay social security and healthcare insurance myself, the total of which is around 1,200 yuan/170 USD per month. Do the math! It is even inadequate to cover such necessary expenditures, and how do you expect me to survive?

A villager representative (male, 66, community volunteer) also complains that,

> The CRL becomes their (leaders of village committee) private property. The disposal of CRL is in their discretion: whether to sell the land, how to develop the land, and how much villagers can get from the revenue. The loophole is that the property management company is entangled with the community committee (village community). The director of the company is also the cadre of the community. The financial status of the collective economy is never disclosed. The property management fee that is not transparent is directly deducted from our annual dividends. Ironically, the management service is the worst that I have ever experienced. There was a theft in the underground parking lot yesterday, and the road repair has been delayed for months. They just did a little bit of sanitation.

The shareholding of CRL is presupposed to safeguard villagers' right to benefit from the collective land resources. Yet, without effective participation in the decision-making process, villagers are confined to exercising their rights through agents (Kan, 2019). Shareholding in rural China is regarded as an effective tool that reinforces local collaboration in governing collective assets, but the collective elites, rather than the grassroots villagers, are mostly mobilized and represent the village in negotiating with the Hangzhou government for villagers' interests during resettlement. Our survey suggests that 72.9% of villagers want to be involved in the decision-making process of resettlement projects (4.52), and 68.5% want to participate in the transformation of community spaces (4.19). The political marginalization of resettled villagers from the resettlement process severely undermines the effectiveness of achieving equitable property rights through resettlement. The lack of institutionalized means of empowerment to villagers renders the arbitrary use of power prevalent in village's elite groups that de facto manipulates property rights over CRL and the redistributive relations in post-resettlement communities.

4.7 Discussion

The case of rural-to-urban resettlement in Hangzhou sheds light on the change of property rights systems in China's contemporary urbanization process, especially regarding "urbanization through resettlement"(C. Yang & Qian, 2022b). In our conceptualization, the Chinese state aims to use resettlement to bring the rural population and land into the urban property rights system which values the importance of private ownership. Resettlement thus has been used to address the longstanding ambiguity issue pertaining to rural land. However, as our findings suggest, the transition did not lead to salient economic enhancement to rural villagers, at least from their perception. According to Dmesetz (1974), property rights change when the marginal benefits of reducing externalities of the previous systems exceed the marginal costs of change. This approach describes a natural transition of property rights in a market-driven economy and thus may not speak for the resettlement in China. Although the Chinese state aims to achieve economic efficiency and maximize society's utility (welfare) by advancing property rights in urban areas, the complexity issue embedded in resettlement weakens the effectiveness of the property rights rearrangement. The complexity issue thus represents the marginal costs that need to be mitigated or internalized during the transition. From a utilitarian perspective, society should choose between privatization ("parcel the commons into private shares") and regulation ("to enact coercive regulations that prohibit overexploration") to realign an

individual's private gain with the collective costs, whichever is least costly to better manage resources (Alexander & Peñalver, 2012, p. 21). Our case suggests that both approaches in resettlement involve negative externalities. Introducing private ownership of housing only concerns the use rights of rural housing built on rural homestead land. The regulation of collective-retained land and communal resources in the resettlement communities cannot be strictly enforced due to the longstanding rurality at play. In this sense, the change of property rights through resettlement cannot be captured by the evolutionary theory of property rights and the utilitarian perspective alike.

Therefore, the politics of property rights and the state's role are vital in understanding how property rights change through resettlement. Cai et al. (2020) highlighted that the selective enforcement of property rights systems in China "enables credible commitment to the property rights of land developers, in many instances at the expense of farmers" (p.154). This observation also holds in our case. As mentioned, the resettlement projects aim at improving land use efficiency of peri-urban lands through land consolidation. The concentrated resettlement communities are high-density settlements that facilitate the Hangzhou government's demand for land and regulate the new urban population. It is worth noting that for political stability, Hangzhou government internalizes the costs associated with property rights transformation in the negotiation between villagers and village collectives represented by village cadres. To wit, village cadres serve as the agent of the Hangzhou government throughout resettlement processes, such as compensation negotiation, community governance, and collective economy management. China's de facto decentralized political structure and the longstanding socialist ideology of collectivism in rural areas complicate the property rights transition of rural collective lands. In resettlement communities, village cadres remain at the political center and determine the disposal of collective land. The exclusive nature of institutions like the collective-retained land thus adds to the complexity of property rights in resettlement.

While the complexity of property rights embedded in resettlement has been discussed at length, it is still inconclusive whether the complexity is justifiable. The co-existence of private ownership (that of apartments) and collective ownership (that of collective-retained land) in resettlement communities thus calls for a specific justification for the property rights system. According to credibility theory, a property system is credible if it serves social functions well (Davy, 2018). It is therefore evident that the current state of complexity is not credible since informality and controversies prevail in resettlement communities. Although credibility allows for a certain extent of informality, the informality in the resettlement communities does not meet the credibility criteria since it requires

institutional intervention for optimal property arrangements (P. Ho, 2016). Therefore, the complexity issue that we present in this dissertation should be interpreted as a property system in transition. The complexity thus reflects the change of the property rights system from the rural one based on collective ownership to an urban one that values more on private ownership. While the change is not free, the state internalizes the externalities and costs not through embracing private property rights system but through village collective and urban informality. The property rights rearrangement should not end at the state of complexity it creates but need further targeted policy interventions.

While our conceptualization suggests that resettlement projects intend to introduce formalized and private property rights regimes for resettled villagers, our findings expose the main obstacles to this ideal transition. First, private property rights did not bring economic enhancements to resettled villagers, at least not significant enough based on their perception. This contradiction to the theoretical assumption is simply because the resettled villagers are excluded from market participation by inadequate compensation. The compensation should have been the realization of the partitioned property rights of rural land (rights over farmland) in the market, but it is instead realized based on standards set by the government. The planning mechanism distorts the market valuation of rural land property, which further undermines the property owners' negotiating power and the initial allocation of resources (their compensated urban apartments) in the urban market. Second, unlike native urban communities, resettlement communities suffer from the remaining rurality that has not been fully integrated into urban society. The rurality challenges the formal institutions imposed by the government regarding how to reap benefits from private property and the governance of communal resources in the urban system. Resettled villagers' perceived property rights are therefore different from those envisaged by the government drives the rural-to-urban resettlement projects, which is bound to impede villagers' adaptation to the host cities spatially, socio-economically, and politically. Third, the collective-retained land (CRL) is an innovative, but compromised institution devised by the local government to achieve a fair property rights rearrangement through resettlement. As the case study suggests, the village collective enjoys fairness while the villagers are marginalized from the decision-making process of redistribution. This management issue echoes Demsetz's (1967) concern over common property rights management due to "a small management group becomes de facto owners" (p.355). While the application of shareholding intends to respond to the management deficiencies of CRL, its effectiveness is also weakened by the authoritarian political structure at the village level (Kan, 2019). The lack of participatory channels and limited political mobilization (J.

Qian & He, 2019; Ren, 2017; Shin, 2013) of landless farmers in China are the major threats to achieving equitable property rights. In sum, resettlement planning and policies should address the above issues in promoting further institutional reforms.

4.8 Conclusion

This research presents the property rights complexity embedded in rural-to-urban resettlement in contemporary China and argues that rural-to-urban resettlement has become the government's potent tool in promoting urbanization and addressing the ambiguity issue of property rights, especially the collective ownership in rural areas. This research engages with the theoretical debates of justification for property systems and argues that the complexity reflects a property rights system in flux. It argues that the complexity issue is anchored with the changing state of China's gradualist economic transition and is deliberately formulated by the government through planning intervention. The complexity cannot be captured through a binary framework, e.g., private vs. collective, formal vs. informal, urban vs. rural, but should be interpreted based on a two-dimensional construct. The alternative paths of resettlement represent the commonly agreed functioning property rights arrangements (P. Ho, 2016) that feature distinctive political stability, administrative and enforcement capacity, constraints, and inclusiveness (Cai et al., 2020). However, the complexity cannot be considered credible as it fails to serve social functions well, such as villagers' demands for economic stability, social cohesiveness, and political inclusiveness. Planning policies and institutional reforms on rural land are integral to establishing a credible property rights system of rural-to-urban resettlement.

Considering the magnitude of rural-to-urban resettlement in China[18], urbanization through resettlement has garnered increasing scholarly attention. Yet, existing literature incidentally examines the property rights rearrangements embedded in the process. It seems that when it comes to the urban realm in China, the dispute over property rights is naturally resolved since the ambiguity issue is anchored with rural land. This ontological and epistemological trap has obscured the complexity issue with property rights as this dissertation elucidated, which hampers China's further effective land use policy reforms in the context of China's promotion of rural-urban integration and rural revitalization. Achieving equitable property rights for the rural realm, especially the resettled villagers, are integral

[18] As of 2020, more than 246 villages have been transformed into urban communities in Hangzhou proper alone.

to the country's commitment to sustainable development. The resettlement housing has become an integral part of China's urban property market, and villagers' improved awareness of property rights has important implications for sustainable urban development. According to Eren (2017), urban development in Asian global cities are largely dependent upon the structure of the property market that is shaped by legal, institutional, and industrial settings. In this sense, the complexity issue of property rights embedded in resettlement should be addressed with structural improvements to increase the sustainability of the Chinese urban property market and urbanization broadly.

Since this research is among the early attempts to conceptualize the complexity issue embedded in resettlement in China, its limitations are worth reporting for future research reference. First, since we did not intend to conduct an exhaustive review of property rights theories, some theories, such as the occupation and social contract theories, were not included in the work. Second, while this research presents how such paths unfold in Hangzhou, some findings should be viewed with caution. Hangzhou is a developed megacity located in the coastal areas, which renders it hard to generalize policy implications nationwide. This also speaks to the universality of changing property rights systems through resettlement. Additionally, as mentioned, the findings can also be limited to the sample size of this research. Second, our interview lacks opinions from village cadres, which may introduce potentially biased perceptions. This is pertinent to the interpretation of the politics of property rights regarding how powerful groups can influence the property rights arrangements and redistribution of resources within a social group. Last, resettlement policies and practices vary in China and thus the policy implications of this work should be contextualized. For example, in remote rural areas, employment provision is tied to resettlement and is deemed a key element in poverty alleviation. The exchange from partial property rights for employment opportunities is likely to complicate the conceptualization of complexity.

Chapter 5
Conclusion

As of writing this dissertation, the Chinese central government issued its 20th Central Document No.1, entitled *Opinions of the State Council of the Central Committee of the Communist Party of China on the Key Efforts to Comprehensively Promote Rural Revitalization in 2023*, which specifically deals with the "Three Rural Issues" (*san nong wenti*), including agriculture, rural areas, and farmers. Article 33 highlights the importance of promoting integrated urban-rural development and the citizenization of the rural population in urban areas. In the previous decades, millions of rural people were relocated physically to urban areas through the government-led resettlement process, but their post-resettlement adaptation to the host cities is somewhat obscure to scholars and policymakers alike, at least seen from the existing literature and policies. This dissertation aims to fill this gap by dissecting the case of rural-to-urban resettlement projects in Hangzhou. Although it is acknowledged that there are similarities and dissimilarities between Hangzhou's case and other rural-to-urban resettlement projects in China, such as those enforced under the poverty-alleviation policy, Hangzhou's case epitomizes China's development model of urbanization through resettlement and the post-resettlement adaptation process of the millions of villagers.

The three articles (chapter 2, 3, and 4) together deepens our understanding of why rural-to-urban resettlement happens, how it happens and its impact on the affected people. More importantly, they provide empirical evidence of how resettled villagers interact with state-led resettlement projects and policies, and how their social agency facilitates their post-resettlement adaption. As the conceptual framework (section 1.3.1) suggests, rural-to-urban resettlement in China responds to both the planetary urbanization condition of development and the political imperative of integrated urban-rural development in China (with heightened attention to the rural side). China's distinctive political-economic context further spawns conditions for interpreting resettlement with Chinese characteristics (section 1.2.2), such as state-market interactions and socio-spatial barriers to resettled villagers' adaptation to urban living. While the literature points to inclusive resettlement as a potential way out, there is a lack of a clear conceptual and practical framework for the notion. This dissertation proposes the right to resettlement (section 1.3.3) to fill this conceptual gap. Seeing resettlement as a capitalist urbanization process and a state mode of production, this dissertation also delves into how space is socially produced in resettlement communities in Chinese cities (section 1.3.2). Overall, this

dissertation conceptualizes rural-to-urban resettlement in China as a state-led urbanization process, which employs the state mode of production to produce post-resettlement spaces in urban areas and introduces property rights system transitions for resettled villagers. Being marginalized from the production process, resettled villagers are delineated from the resettlement project and spaces it produced, which leads to economic, spatial, social, and political barriers to their post-resettlement adaptation process. While inclusive resettlement should have served as the policy priority to address the above issues, it is the resettled villagers' social agency and bottom-up strategies (some are informal) that primarily assisted their adaptation process and efforts in claiming their rights to resettlement. Although there are effective resettlement and planning policies in place, such as public services provision (Chapter 2) and collective-retained land (Chapter 4), the long-term sustainable development of resettled villagers in urban societies merits in-depth engagement from academics and practitioners alike.

This chapter summarizes key findings from the three articles and presents both empirical and theoretical contributions made to the existing literature. Moreover, building upon these findings and novel contributions, this chapter discusses its policy implications on rural-to-urban resettlement, integrated urban-rural development, and urban neighborhood governance and management. Lastly, due to certain constraints, this dissertation is by no means exhaustive, and further research is essential to a comprehensive and nuanced understanding of the research topic. The limitations and recommendations for future research are discussed at the end part of the chapter.

5.1 Summary of Findings

This dissertation comprises three independent but interrelated articles addressing the proposed three sets of research questions, respectively. The first article (Chapter 2), *Measuring the accessibility deprivation of concentrated resettlement communities in China: An integrated approach of space syntax and multi-criteria decision analysis*, contributes to the existing knowledge of the deprivation of resettlement communities in urban China by measuring accessibility to services. Unlike the traditional knowledge that resettlement communities are spatially segregated and thus suffer from spatial barriers to being integrated into urban society, the findings suggest that resettlement communities, in our case, even have higher accessibility to services compared to urban residential communities. While such resettlement communities were located in peripheral areas when resettlement commenced, with the rapid development of the surrounding area, the communities have

gradually earned locational advantages. However, such spatial advantages are unevenly experienced by relevant stakeholders. In this sense, resettled villagers' perceived deprivation may not be well addressed in the decision-making process harnessed by government officials, village cadres, private developers, and academic experts. The quantitative indicators generated through the indices of multiple deprivations (IMDs) of resettlement communities are instrumental in capturing the socio-economic situations of resettled villagers after resettlement, which can serve as the benchmark for deep inquiry into resettled villagers' post-resettlement adaptation.

The second article (Chapter 3), *Urbanization through resettlement and the production of space in Hangzhou's concentrated resettlement communities*, unpacks how resettlement communities in Hangzhou evolved and the driving forces for the evolution. It argues that the production of space in resettlement communities results from the interaction between villagers' changing spatial practices and government-led technocratic planning and design. Specifically, the article finds that resettlement communities in Hangzhou can be subsumed under three typologies, including low-density ungated, mid-density ungated/gated, and high-density gated communities. Resettled villagers in communities that were established in different times adapt to urban life very differently. Overall, villagers in early resettlement communities are grappled with economic challenges but enjoy stable social relations thanks to persistent rurality and collectivism. In contrast, villagers of recent resettlement communities have longer urban exposure and are thus more integrated into urban systems. Yet, when facing economic and social problems, they are less likely to act collectively. Besides, while resettled villagers' spontaneous attempts facilitate their post-resettlement adaptation, the increasingly strict planning and community governance has suppressed such attempts, which further accentuates tensions between resettled villagers and the top-down planned and designed resettlement communities.

The third article (Chapter 4), *The complexity of property rights embedded in the rural-to-urban resettlement of China: A case of Hangzhou*, foregrounds the entrenched property rights issue in China's urban-rural development as the deep-seated reason for hindrances to inclusive resettlement. The article's main finding is that the longstanding ambiguity issue of the rural property rights system cannot be addressed solely through rural-to-urban resettlement. In many cases, rural-to-urban resettlement leads to the complexity issue, which should be interpreted based on a two-dimensional construct (private vs. collective and formal vs. informal). The complexity of property rights also reflects the politics of property rights in flux and the state's selective enforcement of property rights

in China. As for the resettled villagers, the property rights rearrangements did not bring in significant economic enhancements. Their perceived property rights are different from the formal property rights system in the urban society, which impedes their post-resettlement adaptation spatially, socio-economically, and politically. Although the government has introduced institutional innovations, such as the collective-retained land, to achieve fair property rights rearrangement through resettlement, its effectiveness remains under debate given the authoritarian political structure at the village level.

To sum up, the above findings respond to the research questions (section 1.5) on the spatial characteristics of resettlement communities, how the space is produced in resettlement communities, and why it is challenging to achieve inclusive rural-to-urban resettlement. The findings indicate that resettled villagers are not spatially segregated in urban areas, which may result from planning policies that centers on improving accessibility to services in urban China. In this sense, other factors may impede resettled villagers' successful post-resettlement adaptation, such as the contradictions between villagers' socio-spatial demands and the technocratic planning and design of resettlement communities (state mode of production) and longstanding institutional constraints of villagers' right to property rights.

5.2 Contributions

Since this dissertation involves both quantitative and qualitative research, and thus its contributions are threefold. Methodologically, a new method of measuring accessibility deprivation for resettlement communities was proposed in Chapter 2. Theoretically, Chapter 2 explored how spatial configuration contributes to deprivation, which supplements the traditional perception of deprivation based on opportunities in urban areas; Chapter 3 revisited Lefebvre's idea of space production as a process and proposed a dynamic spatial-temporal framework to add to the static interpretation of the theory adopted in prior research; Chapter 4 engaged with the theoretical debates of justifications for property rights systems, and situated the complexity embedded in rural-to-urban resettlement within the debates. Empirically, the three articles each contributed to our knowledge of rural-to-urban resettlement practices in China, which is introduced in detail in later sections.

5.2.1 Methodological contribution

This dissertation proposes a new method for constructing deprivation indices for residential neighborhoods in China. The new indices of multiple deprivations (IMDs) are novel in that 1) it uses

new datasets; 2) it applies a new method that integrates the space syntax approach, the two-step floating catchment area method (2SFA), and GIS multi-criteria decision analysis (GIS-MCDA); and 3) it is capable of measuring relative deprivation. As mentioned in Chapter 2, after being introduced to China, the IMDs have been developed and adapted by numerous previous scholars (Y. Liu et al., 2019; Y. Yuan et al., 2011; Y. Yuan & Wu, 2014), the findings of which have contributed to our fine-grained understanding of deprivation in urban areas. However, since traditional IMDs relied on household surveys and census data, few have taken advantage of the burgeoning new urban data (X. Liu et al., 2015) to construct IMDs that can capture real-time spatial and socio-economic patterns. This dissertation uses one of the most widely-used datasets, the point of interest (POI) data, to represent such patterns in the IMDs. While traditional data such as census data can provide direct socio-economic indicators, they are limited to the cost of acquiring such data, and thus the information only reflects discrete representations of the real world. POIs data, in contrast, provide indirect socio-economic information that can only be used by inferences or reprojection through certain approaches but are the most updated representations of the real world.

This idea of integrating the space syntax approach and muti-criteria decision analysis is adapted from previous work on street network analysis (C. Yang & Qian, 2022a). This dissertation focuses on the accessibility to services as the main indicator of deprivation and thus introduces the space syntax approach and the two-step floating catchment area method, which has been proven to be very effective in measuring physical accessibility and place-based accessibility (Page et al., 2019; F. Wang, 2021; Xing et al., 2018). In addition, considering the heterogeneous effects of the accessibility of different services on the deprivation of residential neighborhoods, GIS-MCDA is further applied as a combination method to balance such effects (Cabrera-Barona et al., 2015). Most importantly, GIS-MCDA enables the consideration of various stakeholders' perception of deprivation in IMDs, which assists in detecting relative deprivation. Facilitated by the sensitivity analysis, the new method can enhance our understanding of how and to what extent different domains contribute to deprivation (Y. Yuan & Wu, 2014) by eliminating uncertainties associated with real-world decision making situations.

5.2.2 Theoretical contribution

The conceptual framework (section 1.3) proposed in this dissertation contributes to the theorization of rural-to-urban resettlement in China, particularly regarding the state's role in space production.

Firstly, resettlement has not only gained legitimacy as a development project *per se* (Rogers & Wilmsen, 2019), but has become a potent governmental tool for urbanization. While the planetary urbanization theory argues that the non-urban realm, including the suburban, the rural, the natural or otherwise, has been internalized into the urbanization process, addressing rural issues remains a top priory in China's urban-rural development planning. The conflicts between urban and rural, such as villagers' socio-spatial demands and perceptions of deprivation and property rights, are central to the theorization of rural-to-urban resettlement. In addition, although aiming for urbanization, rural-to-urban resettlement is harnessed by the state's planning power and thus may require additional theoretical accounts, such as the inclusive geographies of ruralization (N. Chen & Kong, 2022). Second, the state mode of production of rural-to-urban resettlement intends to produce instrumental, urbanized, and homogenizing spaces for resettled villagers in urban areas, and thus render resettled people and space more governable framework (Rogers & Wilmsen, 2019). The contradictions between the top-down production mode and resettled villagers' socio-spatial demands and bottom-up social agency lies at the center of how space is socially produced in resettlement communities. Third, given that resettled villagers are marginalized and alienated from resettlement projects, claiming their right to resettlement is essential for achieving inclusive resettlement. This calls for not only the government to adopt planning and policy remedies, such as the collective-retained land, but also for resettled villagers to exercise their social agency to appropriate and (re)construct spaces in resettlement communities and participation in relevant decision-making processes and neighbourhood governance. To this end, the state should use legal frameworks to create regulation flexibility for accommodating the "informality," i.e., the informal property rights, discussed in this dissertation in resettlement communities. Broadly speaking, the conceptual framework adopts a political-economic and critical approach in adding the knowledge of rural-to-urban resettlement in China to the existing theoretical debates.

Chapter 2 contributes to the theory of space syntax by revealing its limitation in predicting the spatial distribution of residential communities. The theoretical underpinning of space syntax theory is the "movement economy" (Hillier et al., 1993). The notion maintains that the movement of people is determined by the physical layout of road networks, which further shapes and reshapes socio-economic activities in the city. The spatial cluster of amenities should in principle locate at places with high accessibility in the space syntax model. However, by examining the spatial distribution of resettlement communities, this dissertation points out two limitations to the theory: methodological

constraints and the neglect of external factors. That is, the road network structure is becoming increasingly complex in contemporary cities, and the traditional modelling approach by creating the axial map and segment map (Penn, 2003; Turner, 2007b; Turner et al., 2005) is inadequate to capture the connection or segmentation caused by certain factors, such as highways and vertical transportation systems. While there have been studies attempting to address these issues (B. Jiang, 2009; Karimi, 2012; Ozbil et al., 2011; Shen & Karimi, 2016), the deficiency of the theory warrants special attention when interpreting results generated from the space syntax approach. In addition, the external factors, or functional attractors, are more problematic for the theory. This line of debates focuses on the tradeoffs between physical structure and functional attractors in predicting human movement patterns. As shown in Chapter 2, the locational choices of some residential communities are solely determined by developers for the consideration of the proximity to the waterfront, which does not comply with the assumption of space syntax that high-density human movement generates socio-economic activities and spatial gathering and settlements. The existing literature has made a consensus that the relationship between street network structure and socio-economic activities in cities is "circular causality" (Omer & Goldblatt, 2016; C. Yang & Qian, 2022a). Further inquiry in this vein is how to quantify this circular causality in spatial modelling. While it is not the aim of this dissertation to conduct this inquiry, this dissertation points out the necessity of expanding space syntax theory.

Chapter 3 contributes to the theory of space production by providing a dynamic spatial-temporal framework for interpretation and connecting the theory with the Chinese context. As noted in the chapter, prior studies often fall under the trap of seeing the conceptual triad of space production as a static construct and prioritizing space over time, which leads to only partial realization of the theory's explanatory power. This dissertation revisits Lefebvre's writing (Lefebvre, 1991) and highlights the significance of reading the conceptual triad as a spatial-temporal continuum. That is, a particular space is produced from the interplay among the three "moments" at a specific time (period). While the three moments are constantly changing in time, spaces produced from their interactions are diverse. In this sense, space production is a dynamic, pluralistic, and multilayered process that needs effective analysis from a time dimension. Although previous research has engaged with their line of thought to a certain extent (Lee, 2022; Purcell, 2022; Tynen, 2019), there is a lack of effort in making this explicit in writing. In addition to this spatial-temporal analytical lens, this dissertation marries the space production theory with the Chinese context. That is, instead of focusing on the abstract space of

capitalist production, this dissertation argues that the abstract space in China is produced through the combination of capitalist production and the state mode of production, which is especially the case for state-led resettlement projects. The homogenous resettlement communities and strict urban governance structure imposed by the local government, while intended to transform resettled villagers into new "urban citizen," is challenged by villagers' everyday spatial practices and thus impact the space production in resettlement communities. This dissertation therefore responds to McGee (2009)'s call for attention to the state's role in directing the trajectory of space production in Asian cities by highlighting how the state exercises its planning power to guide the evolution of space production in resettlement communities, thereby creating a new Chinese urban landscape.

Chapter 4 contributes to the theoretical justifications for the property rights regime in China. Due to the socialist legacy and the distinctive political economy at play, China's land property rights system has been much contested in the existing literature. Since rural-to-urban resettlement inevitably involves rural land requisition, it leads to the complexity of property rights during and after resettlement, as was detailed in Chapter 4. Therefore, this dissertation argues that the complexity issue reflects the property rights system in transition in China, which is conditioned upon the selective protection and enforcement of property rights systems by the state (M. Cai et al., 2020). This transition aims for an economic system for utility. This dissertation uses the complexity issue in Hangzhou to showcase some mismatches between the theoretical assumption and empirical evidence. First, the property rights change due to resettlement itself is not a result of natural market transition (Demsetz, 1974) but is forcibly implemented through resettlement. Second, the property exchange (transforming property rights over homeland to resettlement apartments) did not bring in significant economic enhancement to resettled villagers as presupposed in theory. This is partially because of the inadequate compensation that the government determines through the planning mechanism, which weakens the negotiation power of resettled villagers. Furthermore, this dissertation invokes the credibility theory (Ho, 2016) to argue that since the informality in resettlement communities requires institutional intervention for achieving optimal property rights arrangements, the complexity issue is an intermediate state that still undergoes a transition. In summary, this dissertation offers theoretical justifications for the complexity of property rights embedded in rural-to-urban resettlement. The complexity conditions inclusive post-resettlement adaptation for resettled villagers.

5.2.3 Empirical contribution

This dissertation offered new empirical evidence for rural-to-urban resettlement in China and resettled villagers' post-resettlement adaptation process. First, this research reveals that the resettled communities, in our case, are not spatially and materially deprived and instead enjoy high validity and diversity. This fact is counterintuitive to the stereotype of resettlement communities as being "dirty (*zang*), chaotic (*luan*), and inferior(*cha*)" (Chung, 2013) and is attributed to the rapid urban development that happened around the resettlement communities. The development densified the local road networks and services, transforming the spatially marginalized communities into locational advantageous ones. This dissertation also highlights existing policies' effectiveness in providing targeted services to resettlement communities, such as the *Hangzhou Regional Health 14th Five-Year Plan*. However, it is worth noting that social deprivation and resettled villagers' perceived deprivation remain the biggest concerns, and such concerns are not reflected in other stakeholders' perceptions of deprivation, which fails to lead to tailored policy remedies.

Second, this dissertation provides a novel and deep interpretation of the spatial dimension of rural-to-urban resettlement through the vehicle of resettlement communities. Prior literature has paid excessive attention to the economic and social dimensions of resettlement, focusing particularly on compensation (Hui et al., 2013b; Tao & Xu, 2007; H. Wang, Zhu, et al., 2017) and resettled villagers' social capital, network, and agency (X. B. Xie et al., 2014; M. Zhang et al., 2017, 2018). This dissertation builds upon previous work (L. Zhou & Xiong, 2019) to examine how space is produced in resettlement communities. Specifically, it points out the spatial heterogeneity of resettlement communities in urban China and captures the three typologies of resettlement communities. This adds to our existing knowledge of social and demographic heterogeneity in resettlement studies (Y. Jiang et al., 2018; Z. Qian, 2019; Tong et al., 2017). It also summarizes the contradictions between resettled villagers' socio-spatial demands and the planned homogenous space of resettlement communities (see Table 3.1). Furthermore, the empirical case of resettlement practices in Hangzhou deepens the understanding of how urbanization through resettlement unfolds in China's most urbanized region and the spatial hinderances to the citizenizaiton of resettled villagers and the new urban citizens in broad senses.

Third, to the best of my knowledge, this dissertation is the earliest empirical study that interrogates how property rights rearrange through resettlement. Therefore, it presents first-hand evidence of how the rearrangements impact resettled villagers. Economically, resettled villagers are somewhat less

satisfied with the property exchange and social security program and thus turn to informal property rights for solutions to economic challenges. Although they may enjoy economic enhancement in an absolute manner, they remain the most economically vulnerable population in cities. In addition, resettled villagers' perceived property rights are different from those of urban residents, which leads to resource management issues in resettlement communities. This evidence is conducive to negotiating and addressing many community governance issues in the existing resettlement communities. Furthermore, this dissertation shows that the collective-retained land is an effective institutional innovation to maximize the village collective's income after resettlement. However, this efficacy may not speak for individual villagers because of the power imbalance among the village in the decision-making process. This fact poses challenges to a healthy and sustainable collective economy in the post-resettlement era.

5.3 Policy Implications

China is in a transition toward a completed urbanized society, with an estimated urbanization rate of 75% by 2035 (ChinaDaily, 2022). Different from western urbanization that is featured by the capital switch and circulation (Harvey, 1978), urban agglomeration (Fang & Yu, 2017), and the planetary urbanization condition (Brenner & Schmid, 2015a), China's urbanization path is negotiated between market mechanisms and strong planning intervention due to the distinctive political economy. The difference has been made prominent after China's progressive strategy on the development of rural and peri-urban areas, such as the policy rhetoric of rural revitalization, beautiful countryside, and small-town urbanization. The integrated urban-rural development (C. Yang & Qian, forthcoming) and the new type of urbanization have spawned various policies that aim to effectively balance development in both rural and urban areas, one of which is the rural-urban resettlement policy. This dissertation examines resettlement practices in Hangzhou, and the findings have important policy implications.

Foremost, existing resettlement policies should heed the spatial dimension of resettlement practices and their impact on resettled villagers' post-resettlement adaptation. The spatial dimension includes the locational choice relating to relocation, the planning and design of spatial layout and spaces inside resettlement communities, and the governance of spaces in resettlement communities. As noted in Chapter 2, the location choice for resettlement communities is less of a concern for resettlement projects. The existing practices adopt either *in situ* or *ex-situ* resettlement, whichever incurs less

financial burden for the government and developers. In both cases, the resettlement communities are originally located in peri-urban areas that are distant from the urban core, which sometimes creates an enclave of resettlement communities. Although such locational barriers may be mitigated as urban continues to expand and encroach on the adjacent suburban areas, as evidenced in Hangzhou's case, this transition takes time, which is at the cost of resettled villagers' everyday life. In this sense, the decision on the locational choice of resettlement communities should be addressed in pre-resettlement planning or, at least, be incorporated into the long-term development plan of the local areas and the city. Moreover, post-resettlement evaluation of the location choice of resettlement communities should also be adopted in the resettlement planning process, such as the use of indices of multiple deprivations (IMDs). This effort should join big moves towards a systematic post-resettlement assessment system. Current economic policies on compensation packages (Z. Qian, 2015a) and social assessment policies (Shi, Yu, et al., 2021a) are predominantly used in the pre-resettlement stage, and post-resettlement assessment is relatively underdeveloped[19]. This dissertation highlights this gap and intends to contribute to post-resettlement assessment using the proposed IMDs.

Chapter 3 highlights the conflict between resettled villagers' spatial demands and the planned space in resettlement communities. This conflict is hard to reconcile as land is expensive and space is at a premium in urban areas, which inevitably leads to the high-density urbanism that significantly departs from the rural landscape. While resettlement policies should at least attempt to address such spatial demands in the planning and design scheme, the current practices separate the production of resettlement communities from the resettlement process. The lack of participatory procedures in the planning and design stages hinders formal avenues for resettled villagers to have a say on spaces inside resettlement communities. Indeed, according to China's *Measures for Public Notice of Land Acquisition*, resettled villagers can only participate during three specific periods of time – the two notices and one registration (*liang gonggao, yi dengji*). The two notices refer to the notice of land requisition and the notice of compensation and resettlement plan, whereas the one registration alludes to the registration of compensation. These opportunities open a short time window, usually 30 days, for resettled villagers to appeal to relevant operations. However, during the interviews, local villagers reported that they were only informed of the decisions at these moments, and they did not even know

[19] For poverty allevation resettlement in particular, there is targeted monitoring and support mechanisms to prevent the resettled people from turning to poverty.

their rights to appeal. As such, the decision on planning and designing resettlement communities is ultimately in the hands of the government and developers and the design institutes/firms hired and is negotiated during their internal meetings. While not all spatial demands of resettled villagers are appropriate for an urban setting, some of them should serve as points of reference in spatial design. Most importantly, resettlement policies should create more opportunities for public participation and involve resettled villagers to weigh in at some point in the design process. In addition, while neighborhood governance has garnered increasing attention in China especially considering the COVID-19 pandemic, governance in resettlement communities has been less attended to in the existing policy. This is partially due to the continuation of the administrative structure copied from village collective committees and the transitional and unstable state from self-governance in rural areas to hybrid governance in urban counterparts. In this sense, urban policies on neighborhood governance should acknowledge the heterogeneity of urban neighborhoods and offer a flexible governance structure that accounts for rural practices, accustoms, and cultures.

The complexity of property rights presented in Chapter 4 needs special policy attention. Since the complexity issue is rooted in China's institutional background of the urban-rural divide, it is foreseeable that progressive and systematic reforms would not be made in the near future. Nevertheless, policy remedies that strive for reform in this direction are essential for effective institutional changes. For example, as mentioned, resettled villagers are made vulnerable in the urban property market due to the deliberately devised regime, such as the compensation mechanism that is not based on market valuation. As such, introducing a market mechanism into the property exchange process is an entry point for safeguarding resettled villagers' rights over rural land. While the government's investment into infrastructure certainly contributes to land appreciation, there should be a formal financial analysis of resettlement projects, especially on economic benefits that should have belonged to resettled villagers through a market lens. In addition, although the collective-retained land has been proven to be effective in safeguarding resettled villagers' economic rights to benefit from collective land resources, it brings up a legacy issue of collective land in urban China. As noted in Chapter 4, it also led to an extra-legal urban housing market and management deficiencies within the village. Further policy intervention should focus on rectifying the power imbalance issue regarding collective decision-making on the disposal of collective land and reforming the existing shareholding mechanism that is *de facto* a structure inherited from the traditional rural administrative system. Above all, since the complexity issue reflects the selective enforcement of property rights

systems by the state, future policy interventions may also align with China's macro policy rhetoric of new-type urbanization, which aims to "protect the rights over rural land for farmers who have settled in cities according to the law, and to improve the market-based exit mechanism." [20]

5.4 Limitations and Future Research

Every research has its own limitations, which leaves room for future endeavors by acknowledging such limitations. This dissertation has serval limitations, including but not limited to the following aspects: deficiencies in research design due to the Covid-19 pandemic, the universality of research theoretical contributions and findings, and not getting around to conceptualizing some important concepts.

This research was conducted primarily during the Covid-19 pandemic (hereafter the pandemic) that lasted for almost three years from 2020 to 2023, and is still under careful monitoring worldwide. The pandemic has substantially constrained the research design regarding the scope of the research topic and the length and depth of fieldwork. As such, for feasibility purposes, the scope of this research is narrowed down to rural-to-urban resettlement and the case selection is limited to resettlement practices in Hangzhou, as representative of China's most urbanized and developed region. On the one hand, this narrow scope enables a deep investigation of the Hangzhou case. On the other hand, it precludes the possibility of comparative analyses between the Hangzhou case with other comparable resettlement practices in China. Besides, due to the pandemic, both the Chinese and Canadian governments impose strict regulations on international travel and domestic travel, which leaves a short window for conducting fieldwork. Additionally, pandemic regulations in China further limited the form and size of interviews and questionnaire surveys. The final sample size for the dissertation, while being relatively adequate, underrepresents some important groups of stakeholders, such as village cadres. As mentioned in Chapter 3 and Chapter 4, this may introduce potential bias in the interpretation of the politics within the village and its impact on space production and property rights equity. The sample size of questionnaire surveys impedes the further application of inferential statistics to generate more insightful quantitative results.

As for the universality of the research, it is worth noting that findings from this research should be interpreted with caution when investigating resettlement practices in other contexts. As the foregoing

[20] http://www.gov.cn/zhengce/zhengceku/2022-03/22/content_5680416.htm

makes clear, the case of Hangzhou represents rural-to-urban resettlement practices in an urbanized and highly developed region which is featured by rapid urban development and a relatively affluent compensation package. Such conditions at least influence the findings that resettled communities are less materially deprived because of the development in surrounding areas and that resettled villagers are generally better off after resettlement. In less developed and remote regions, resettled communities and resettled villagers may confront more severe economic challenges due to the abrupt transition of occupation, life, and consuming behaviors. In my ongoing research, resettled villagers in Guizhou, one of China's most impoverished and underdeveloped regions, have difficulties finding employment in the small town where they are resettled and thus rely on working as migrant workers in megacities that are thousands of kilometers from their resettlement communities. Rural-to-urban resettlement practices like the Guzhou case are substantially different from the Hangzhou case, especially regarding resettled villagers' post-resettlement adaptation. Although Hangzhou is famous for piloting China's rural and urban policy reform, knowledge derived from this specific geography should be contextualized before being appropriately referenced in other settings.

Another important limitation that is worth highlighting is that many critical concepts were not elaborated at length in this dissertation, which are the major research themes for further research. First, as mentioned in Chapter 2, due to the availability of data, the method of constructing indices of multiple deprivations is not thorough and thus can be further improved. The social dimension of accessibility and deprivation as well as a fine-grained of individual-level data due to the ecological fallacy, are essential to the methodological perfection building upon this dissertation. Second, the concept of "urbanization through resettlement" is inadequately conceptualized and spelled out in the dissertation. Although it is not new to link urbanization with resettlement (Wilmsen, 2018), the conceptualization of this idea in this dissertation is mainly inspired by recent debates on planetary urbanization (Brenner & Schmid, 2015b) and geographies of ruralization (Gillen et al., 2022b). In this sense, future empirical studies based on the concept of urbanization through resettlement is needed. Third, as briefly touched upon in this dissertation, the informality associated with resettlement communities and the rural population, in general, has yet to receive heightened scholarly attention. While the phenomenon of the urban village has been examined in detail, urban informality literature in China should be expanded by attending to informality associated with resettled communities. Last but not least, this dissertation did not have a chance to extend practical approaches to achieving inclusive rural-to-urban resettlement through claiming the right to resettlement, specifically from the

bottom-up approaches. This is an essential building block for rural-to-urban resettlement studies in China and the Global South, as existing top-down approaches have been proven to be insensitive to the struggles of the affected and the lag in targeted policy amendments and implementations. Marrying urban informality (Roy, 2005) and the right to resettlement may be effective in addressing the socio-spatial inequality induced by resettlement.

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Appendix A

A1 Appendices in Chapter 2

Table A.1 The summary table of the Chi-Square test

Variable	N	Pearson Chi-Square Value[a]	Sig. (2-sided)[b]
Var001-Gender	168	.506	.776
Var002-Age	168	34.486	.000
Var003-Employment	168	19.890	.000
Var004-Education	168	33.666	.000
Var005-Martial status	168	5.113	.242
Var006-Household size	168	20.289	.000
Var007- Living space	168	83.851	.000
Var008- Generation(s) living together	167	24.642a	.000
Var009- Primary source of income	168	75.089	.000
Var010- Monthly income:	109	13.983	.051
Var011- Length of residence(Year)[c]	-	-	-
Var012- Urban exposure before resettlement	143	34.328	.000
Var013- Commuting patterns	98	4.945	.272
Var014- Commuting time	80	19.023	.004

Notes: a, b. The column reports the result of Fisher's Exact Test if applicable. c. This line is not applicable since most of the resettled villagers moved to the CRC once it was completed.

Table A.2 The summary table of the ANOVA

Variable	N	Mean			Test of Homogeneity	ANOVA(Sig.)						
		GS	XS	YC		F	LSD			Dunnett's T3[a]		
							1|2[b]	1|3	2|3	1|2	1|3	2|3
Var015-I prefer the current housing space of the apartment to the rural housing space.	168	5.0	3.4	3.2	.931	.000	.000	.000	.620			
Var016-I prefer the urban community environment to the rural one.	168	4.8	4.2	3.6	.232	.000	.020	.000	.028			
Var017-I am more satisfied with the public space in the community than in the countryside.	168	4.3	3.7	3.7	.418	.057	.028	.046	.961			
Var018- I am satisfied with the landscape environment of the community.	168	4.0	3.8	3.5	.011	.301				.921	.403	.600
Var019- I am satisfied with the location of the community.	168	5.5	5.7	3.9	.000	.000				.752	.000	.000
Var020- I am satisfied with the convenience of living around the community.	168	5.3	5.3	4.0	.043	.000				1.000	.000	.000
Var021-I work very close to the community.	168	5.2	4.9	4.1	.118	.003	.393	.003	.009			
Var022-I hope there will be further improvements in the community.	168	5.3	4.9	5.1	.683	.097	.031	.287	.325			
Var023-I prefer the urban lifestyle to the rural one.	168	4.6	3.5	3.8	.554	.001	.000	.006	.452			

Var024- I still retain some of my rural habits.	168	4.8	3.9	4.0	.387	.002	.001	.004	.856			
Var025- My neighbors and I often visit each other.	168	5.3	4.4	4.0	.592	.000	.000	.000	.110			
Var026- My children (parents) and I often see each other.	168	5.7	5.4	5.2	.061	.029	.059	.010	.364			
Var027- My relatives and I often visit each other.	168	5.4	4.8	4.6	.060	.004	.015	.001	.274			
Var028- My colleagues at work and I often see each other.	168	4	4.3	3.6	.250	.048	.558	.448	.014			
Var029- I consider myself more a member of the community than a member of the village.	168	3.1	4.4	4.0	.623	.000	.000	.001	.620			
Var030-I have a strong sense of identification with the community.	168	3.3	4.0	3.7	.224	.009	.008	.887	.012			
Var031- Our community is very united.	168	4.1	4.0	3.0	.055	.000	.737	.000	.000			
Var032- I have not been discriminated against or treated unfairly because I am a resettlement household.	168	5.8	4.3	3.9	.000	.000				.000	.000	.414
Var033- I think the community has high security.	168	5.3	4.4	3.4	.000	.000				.000	.000	.000
Var034- I am more adapted to urban social relationships than to those in the countryside	168	4.3	3.5	3.5	.988	.002	.002	.002	.768			
Var035- I am satisfied with the settlement compensation I received.	168	2.4	3.4	3.0	.274	.001	.000	.043	.089			

Var036- I am satisfied with my income level.	168	2.9	3.9	3.6	.513	.000	.000	.005	.198			
Var037- The government (village) has helped me a lot in finding my current job.	168	3.0	2.9	3.1	.222	.853	.834	.793	.574			
Var038-I prefer my current job to what I did before the resettlement.	168	4.5	3.6	3.2	.085	.005	.020	.001	.240			
Var039- I am satisfied with the social benefits I enjoy now.	168	4.3	3.9	3.8	.326	.221	.167	.104	.711			
Var040-I am satisfied with the extra income and benefits provided by the village collective.	168	3.1	3.5	3.4	.046	.339				.456	.721	.957
Var041- I prefer resettlement housing to rural housing because the former can be rented and sold freely.	168	5.6	4.6	3.6	.000	.000				.000	.000	.003
Var042- During the resettlement process, I participated in some relevant government-led public meetings.	168	3.7	3.1	3.6	.093	.066	.032	.704	.082			
Var043- I would love to be involved in the decision-making process of resettlement projects.	168	5.1	4.3	4.2	.148	.004	.004	.003	.794			
Var044- I think the whole resettlement process is very fair and there is not much difference in compensation for different households.	168	2.5	3.3	3.9	.493	.000	.010	.000	.040			
Var045- I actively participate in community activities	168	2.7	3.4	4.0	.015	.001				.136	.001	.067

Var046- If possible, I would like to participate in the transformation of community spaces, such as green spaces, recreational areas, etc.	168	4.8	3.9	4.0	.061	.002	.001	.004	.898			
Var047- I have often participated in voting for the residential committee.	168	5.3	3.3	4.3	.009	.000				.000	.003	.004
Var048- I am satisfied with the government's resettlement policy.	168	2.4	3.8	3.8	.692	.000	.000	.000	.848			
Var049-I think the resettlement project is good for urban development.	168	4.7	4.5	4.1	.184	.078	.439	.027	.110			
Var050- I think the resettlement project from planning to implementation has been smooth and in line with our expectations.	168	2.9	3.5	3.6	.080	.020	.017	.012	.755			

Notes: a. The result of Dunnett's T3 is reported when the Test of Homogeneity is significant. b. the column 1|2 lists the results between 1 and 2; 1, 2, 3 represents GS, XS, and YC, respectively.