

WHETHER 15-MINUTE COMMUNITY-LIFE CIRCLE PLANNING IS A MIRAGE:
A CASE STUDY IN SHANGHAI

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ABSTRACT



The 15-minute community life circle planning is the new model for providing community public services in China. As the national pilot zone, Shanghai has constructed community life circles since 2016. However, the existing research shows that people's needs in the life circle are not met and a huge disparity in the supply of community facilities exists between the center city and the suburban areas. This paper reviews the history of China providing community public services and examines the changes in the value of community governance. Taking Shanghai as an example, this paper conducts research and spatial evaluation, summarizes the existing mismatch, and proposes an alternative community life circle model focusing on improving collaboration among government, market, and civil organizations, rather than adjusting fixed physical parameters. This paper aims to provide a reference for further research on community services supply to promote a more inclusive and equitable built environment.

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BIOGRAPHICAL SKETCH

Ziyu Zhao, a second year MRP, master of regional planning student at Cornell University. Her interest lies in urban analytics and urban policies to create a more inclusive city. Before coming to Cornell, she completed her undergraduate in urban planning at Tongji University. Although studied planning for both undergraduate and graduate, the planning education in China and US are quite different. Planning education in China is more focused on physical planning and design. While at Cornell she was exposed to multiple topics, from urban microeconomics to policies to statistics. She also minored in the real estate program. All these education experience enabled her to know not only the built environment but also the factors that create the built environment, to understand how society systematically coexists within the built environment and all the layers in between.

Whiles studying, she has worked as research assistant in Department of Global Development where she participates in a project that measures flood risk perception, protective actions, and policy preferences in upstate NY. She is also a research assistant in Department of Regional Planning at Cornell University where she participates in project about U.S. and China urban planning education. During her undergraduate program, she also worked as research assistant in The Healthy City Lab at Tongji University. In addition, she had multiple internship experiences in think tanks, planning institutes, and big data and IT companies in Shanghai, providing consulting services to the public sector as well as companies.

All these experiences, including educational and professional give her valuable insight on understanding Chinese city urbanization and how government plays a role in this process. This improves her abilities in research, communication, multi-tasking, and fast learning. She wishes to contribute to improving public outcomes through a people-centered approach, devoting all her heart and intelligence through continuous learning, practicing, making mistakes and improving.

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Introduction

In recent years, the concept of a "15-minute community-life circle" has been widely recognized and promoted in planning practice in Shanghai, as well as in China as a whole. In 2016, the Shanghai Municipal Government issued the first *Planning Guidelines of a 15-Minute Community-Life Circle* in the country, which advanced the idea of the "15-minute community life circle" as the basic unit of providing basic services for residents within 15-minute walking distance, aiming to mediate spatial inequality and create a more inclusive city. In 2020, the Ministry of Natural Resources promoted the "15-minute community-life circle" as the national reform and innovation component of "Multiple Planning Integration" and promulgated the National Industry Standard for Community-Life Circle Planning, which indicates that 15-minute community-life circle planning is no longer a local but a national planning strategy which will be implemented in all cities in China as a whole.

Taking Shanghai as an example, however, this paper questions whether the 15-minute community-life circle planning is a mirage on the ground, as the distribution of life circle programs is seriously unequal. Ma et al (2020) evaluate the distributions of 13 kinds of essential public facilities in about 30,000 neighborhoods in Shanghai using GIS, kernel density, and buffer zone analysis. The results imply no facility of any kind has a coverage rate of 100% in the whole city, and there is a serious imbalance in the distribution of various public service facilities between the central city and outlying suburbs. MetroDataTech (2017) examines the layout of 15-minute community-life circles in Shanghai with 10,000 neighborhoods as a sample. The researchers mapped out 6 types of public facilities in Shanghai, including elderly care, health clinic, transportation, education, culture and sports, and commerce. The results demonstrate only 12% of neighborhoods have access to all 6 types of public facilities. Also, there is great spatial inequality between the center city and outlying areas; almost all the neighborhoods that have access to 6 types of public facilities within a 15-minute walking distance are located within the central city, while a great number

of neighborhoods in the outlying areas have no public facilities within a 15-minute walking distance. The Paper (2020) studies the 15-minute community-life plan from a micro perspective through a survey with a sample size of 1538. The results also present that the matching of public facilities within and outside the center city is severely uneven. Taking medical facilities as an example, more than 50% of the respondents living in Yangpu District, one of the districts in the center city, said the clinics they visit most often are no more than 1.5 kilometers away from home. In contrast, most residents in Qingpu District, one of five new towns in Shanghai, said that the clinic they visit most often is more than 5 kilometers away from their homes.

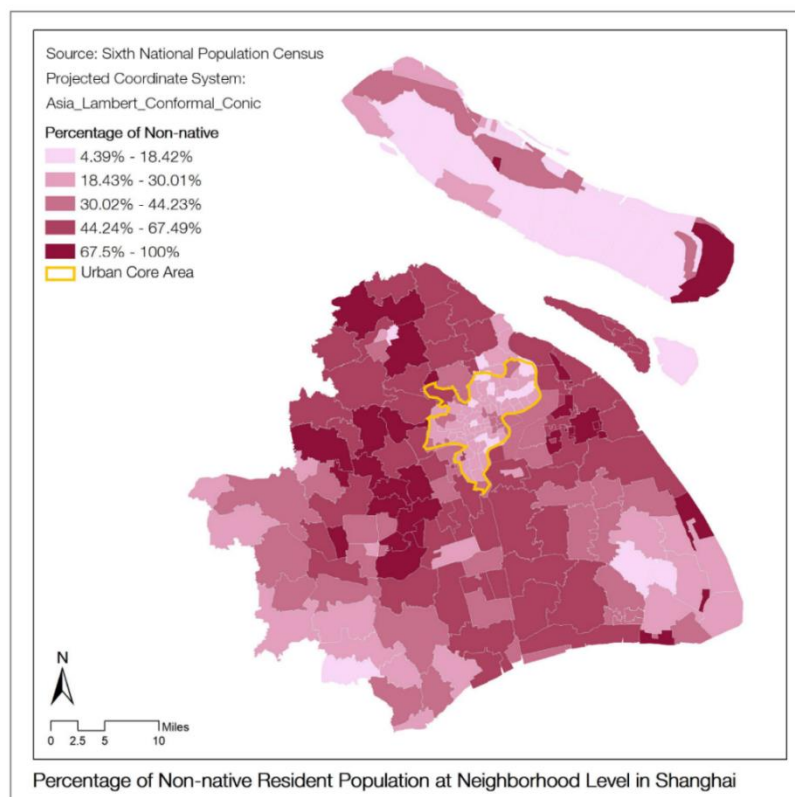


Figure 1: Percentage of Non-native Resident Population at Neighborhood Level in Shanghai, 2010

Source: Sixth National Population Census, post production by the author

The Shanghai municipal government attaches great importance to life circle planning, Shanghai's 14th Five-Year Plan (2021-2025) has clearly stated that the coverage rate of a 15-minute community life circle needs to reach at least 85% by 2025, 99% by 2035.

Through spatial evaluation using GIS and buffers zone geographical analysis, this research seeks to provide specific suggestions for promoting life circle planning from the perspective of social collaboration and mobility improvement. The following questions will be addressed: How is 15-minute community-life circle planning carried out in Shanghai? Why is there huge disparity between the center city and new towns? What are the main differences between the central city and new towns that may cause uneven development? How can the city construct a more equitable life circle program?

Literature Review

Community Life Circle: Concept and Development

The concept of “Life Circle” and its planning practice originated in Japan (Yu, 2019). In 1965, the Japanese government put forward the concept of a "wide-area living circle" for the first time to tackle excessive inequality of resources, significant regional gaps, increasing environmental pollution, and rural environmental degradation due to the industrialization process since the 1950s. Later in 1977, the Japanese government proposed the "settlement circle" concept in the "Third Identical Comprehensive Development Plan", which refers to the basic spatial scope formed by residents taking their home as the center to carry out the commuting to school, shopping, leisure, medical and other activities needed for everyday life (Xiao, et al, 2014; Sun & Chai, 2017; Chai & Li, 2019).

Subsequently, the concept of the "settlement circle" became the main prototype, and the concept of the "15-minute community life circle" gradually spread to South Korea and other Asian countries. In 1980, South Korea proposed life circle planning in the "Second Comprehensive Land Development Plan (1982-1991)" for the first time. In the early 1990s, China introduced the concept of "life circle" and carried out related studies. Chai (1996) first proposed the life circle system building upon the characteristics of the Chinese Danwei compound. Since then, a number of explorations have been made on the framework, content, construction, implementation, and evaluation methods of community life circle planning (Sun & Chai, 2017; Yuan, et al. 2005; Zhu et al, 2010).

In recent years, cities in Europe and the United States have also begun to consider community life circles as a response to concerns with emission reduction. Paris promoted this model in 2020 primarily to reduce urban carbon emissions and create inclusive neighborhoods in which all residents’ needs can be met within 15-minutes walking or biking distance. Barcelona, Detroit, London, Melbourne, Milan, and Portland are all moving toward a similar approach. Notably, the concept of a community life circle may be further promoted

after the pandemic. In the newly released report from the C40 Cities Climate Leadership Group for a Green and Just Recovery Agenda (C40 Mayors' Agenda for a Green and Just Recovery, n.d.)), this concept is regarded as one of the most essential and effective economic recovery tools.

Community Life Circle in China: A Transformation for Providing Public Services

Community public services include various services provided by the community as a unit. These public services are local public welfare services designed to meet the basic service needs of the residents in the community and surrounding areas (Yang, 2001). Although China has gradually introduced some social and market forces into community public service supply in recent years, including enterprises and NGOs, the majority of community public services is still provided by local governments through a top-down approach (Gao, 2009). The content of community public service is not fixed, it depends on the residents' consumption level and structure, their preferences for organizing social life and other factors. For instance, in 1964, there were only 40 kinds of required facilities for residential public service in China. In 1980, it increased to 66 facilities, and to 72 facilities in 1993 (Li, 2001). By 2016, the community public service system includes six major categories of services, including culture, education, health care, elderly care, sports, and business (Planning Guidelines of a 15-Minute Community-Life Circle, 2016).

In the 13th Five-Year Plan period, the 15-minute Community Life Circle began to be used in planning practice as a new model for providing community public service. The reason why the Chinese government focused on this new model during the 13th Five-Year Plan period is related to institutional changes in public service supply in China under rapid urbanization.

Before 1990s: Danwei as the Basic Unit for Providing Community Life Service

Shortly after the establishment of the People's Republic of China in 1949, the new Chinese government adopted a highly centralized and unified leadership system with strong

resource mobilization capabilities, aiming to cope with the extremely severe foreign and domestic issues regarding economic, political, and social strife (Li, 1993). Under this system, the government comprehensively occupied and controlled various social resources and production, thoroughly intervening in social life, and fully providing the basic living needs of social members. Under the Danwei system, the work unit was how almost all urban society was organized. Students belonged to the school unit, and once they entered the workplace, they belonged to the work unit. After retirement, they still belonged to the original work unit, but also to the neighborhood unit where they lived. In short, from the cradle to the grave, urban residents in China lived in work units at that time until opening-up in 1978. (Bjorklund, 1986; Li, 1993; Chai, et al, 2007.)

Danwei was not only a work unit where social members were paid for their production, but also a spatial concept that was a territorial unit within which community public facilities were provided to members, including housing, health care, nurseries, kindergartens, canteens, bathhouses, and collective enterprises for the employment of employees' children. The various social services provided by the Danwei were regarded as welfare, and even the employees of the Danwei considered such service a natural responsibility. Notably, Danwei not only provided its members with a variety of social security and welfare services, but modified unit members socio-political status in the society. Members in leadership position, or with a higher administrative level, or who belonged to a rich and politically strong work unit could more easily obtain scarce resources and more political interests (Bjorklund, 1986; Li, 1993; Chai, 1996; Bray, 2005).

1994: Tax Reform and Housing Commoditization

China's tax reform in 1994 brought significant changes to the country's fiscal system, which have had a profound influence on China's urbanization (Shen et al., 2012). The tax reform in 1994 could be characterized as recentralization of revenue (Yang, 2016). Before 1994, China utilized a "fiscal contracting" system in which each local government

committed a fixed tax quota to the national government. The collections above could remain at the local level, which was a strong incentive for local government to support economic development. Taking Beijing in 1988 as an example, the fiscal revenue in 1987 was used as the base. After negotiation, a fixed annual revenue growth rate of 4% was set. Thus, the increase in revenue exceeding 4% would go to the local government, and the rest would be divided equally between the local and central levels. However, local governments preferred to conceal their tax increment from the national level under this system, otherwise the national level would increase the tax base line next year. Thus, a huge asymmetry occurred in which local governments held tax increments while the national government paid the deficits (Ahmad, 2008). To address this imbalance, the central government implemented a new radical tax reform.

Under this new tax system, fiscal power was recentralized to the national government through establishing The National Tax Bureau to securitize major tax revenues, such as the value-added tax. Value-added tax accounted for 1/4 of the national tax revenue at that time. Before the reform, value-added tax was the largest local tax as a product tax. After the reform, it became a shared tax, with the central government sharing 75% and the local government 25%. In addition, later, in the tax reform in 2001, the central government took away 60% of the local tax revenue, which intensified local financial pressure (Lan, 2020). Notably, the new tax system has not changed the task of local governments focusing on economic growth but has reduced the financial resources at their disposal. Local government found it hard to fulfill their responsibilities including urban maintenance and construction, environmental protection, water supply, and community services and providing public services, such as education, health care, social welfare, public safety, and other local and urban services. Later in 1998, the Danwei stopped the distribution of welfare housing, and people's demand for housing skyrocketed. Local governments suddenly realized the incredible value of state-owned land and started to lease massive land to real estate developers to increase their revenues. Since then, China has transformed from a

welfare-based housing system to a market-based housing system in which market forces and real estate developers started to play an increasing role in the housing production and public facilities construction (Wang & Murie, 1999).

From 1990s to 2013: from Danwei Community to Gated Community

With the deepening of housing reform, commercial housing became the mainstream. Millions of urban residents moved from Danwei housing to commercial housing, changing the composition of households in Danwei communities and triggering the evolution of urban communities. Service facilities in Danwei communities changed from a members-only model to a social sharing model. The schools, clinics, nurseries, canteens, and bathhouses traditionally limited to Danwei members have gradually become externalized and open to all nearby residents, gradually integrating into the urban service facility network system (Zhang et al, 2009). On the other hand, "Gated communities" (xiaoqu) are gradually replacing Danwei communities and becoming a new residential unit for city management and the community service system (Huang, 2005; Lu, 2005; Zhang et al, 2009). The new community service facilities are constructed along with the real estate residential development. Developers are required to provide community service facilities in their plans based on the "thousand-person indicator" in the national standard and reviewed by the planning board before construction.

However, there are major problems with this new approach for providing community facilities. First, it is a top-down, statically homogeneous planning process that emphasizes the matching of the overall facility supply and population demand, ignoring the uneven development within urban areas and the diverse needs of residents (Chen & Zhang, 2007). Second, in the review process, the planning board only emphasizes whether the total area of the facility space meets the standard with little supervision on the layout and quality (Yang & Zhao, 2002; Lei & Wang, 2019). To maximum profit, developers would usually build as many saleable houses as possible in a limited area, and then fill the remaining corners with

public facilities, without considering the accessibility, convenience, and service quality of facilities. Surveys in 2013 from several Chinese cities show that after the completion and handover of community facilities, there are generally problems such as "inconsistent facility types, insufficient use area, unreasonable space, and delayed delivery time" among residents (Hu et al, 2013).

From 2013 to Present: from Gated Community to Life Circle Planning

With China's rapid urbanization, the original top-down, statically homogeneous model of public facilities has become increasingly difficult to meet residents' various needs. In 2013, China proposed the implementation of a new-type urbanization which focused more on the improvement of life quality in its 18th National Congress. Correspondingly, urban planning has shifted from focusing on urban economic (production) space construction to planning oriented towards residential space, from focusing only on “things” to focusing on “people”, from focusing only on the increase in quantity and scale to focusing on the improvement on quality, and from only attention not just to space but to planning for the integration of space and time (Chai, 2014). With the trend of putting people first and attaching importance to people's needs, life circle planning takes residents' daily life as the object and combines physical space planning and social planning as the foundation for future urban planning transformation. To realize more equitable and precise allocation of public resources, planning practice has begun to examine the differentiated needs of residents and realize the value of bottom-up planning with residents' participation (Wu, 2015). Under such background, a new physical model to provide community services, the fifteen-minute life circle planning, started to come into practice in Chinese planning.

From 1949 - present: The Changes in Values of Chinese Community Governance

It is worth noting that as China's mechanisms for providing public services have changed over the decades, the values of Chinese community governance have also changed. During the Danwei era, China implemented a unified structure for community governance.

The community resources were allocated by the central government, and all affairs at the community level were executed based on the mandatory state order, including planning, investment, management, production, and distribution. With the opening-up reform in the 1980s and the tax reform in the 1990s, the market increased participation in urban construction and began to play a crucial role in providing public services. Community governance developed from “unified management” to “diverse construction” in which the government and the market jointly participated. Since 2013, the CPC National Congress has proposed to devolve power and authority to the subdistrict level regarding community public services. Also, Beijing emphasized the roles and functions of civil organizations in the provision of community public services. Several actions were taken to substantially reduce and decentralize the approval and review by the central government and devolve power to the community level. At the same time, the provincial and municipal government levels have also provided more human, material, and financial resources to the grassroots in accordance with the command of the central government. Second, cooperation between the government and civil organizations was strengthened, as government increased the purchase of services from these social groups, forming a new community governance structure with continuous interaction among government, market, and civil society. (Xu & Jiang, 2013; Chen & Shen, 2016; Zhang, 2017; He, 2018; Ma, 2018; Xu & Zhang, 2019).

Equivalent Concept in US: Neighbourhood Units and Walkability

Walkability in Neighborhood

Over the past decades, walkability has become a significant buzzword in planning for American cities given the increasing problems on air pollution, congestion, and car accidents caused by dependence on automobiles. Abley (2005: p.2) defined walkability as “the extent to which the built environment is friendly to the presence of people living, visiting, enjoying or spending time in an area”. Further, Southworth (2005: p.3) defined walkability as “the extent to which the built environment supports and encourages walking

by providing for pedestrian comfort and safety, connecting people with varied destinations within a reasonable amount of time and effort, and offering visual interest in journeys throughout the network”. Notably, the concepts of walkability and neighborhood have long been intertwined. Back to 1929, Clarence Perry stated six main components for designing a neighborhood unit in which he utilized a 5-minute walking distance as radius to define the neighborhood size (Figure 2). Perry placed a high emphasize on walkability in neighborhood.

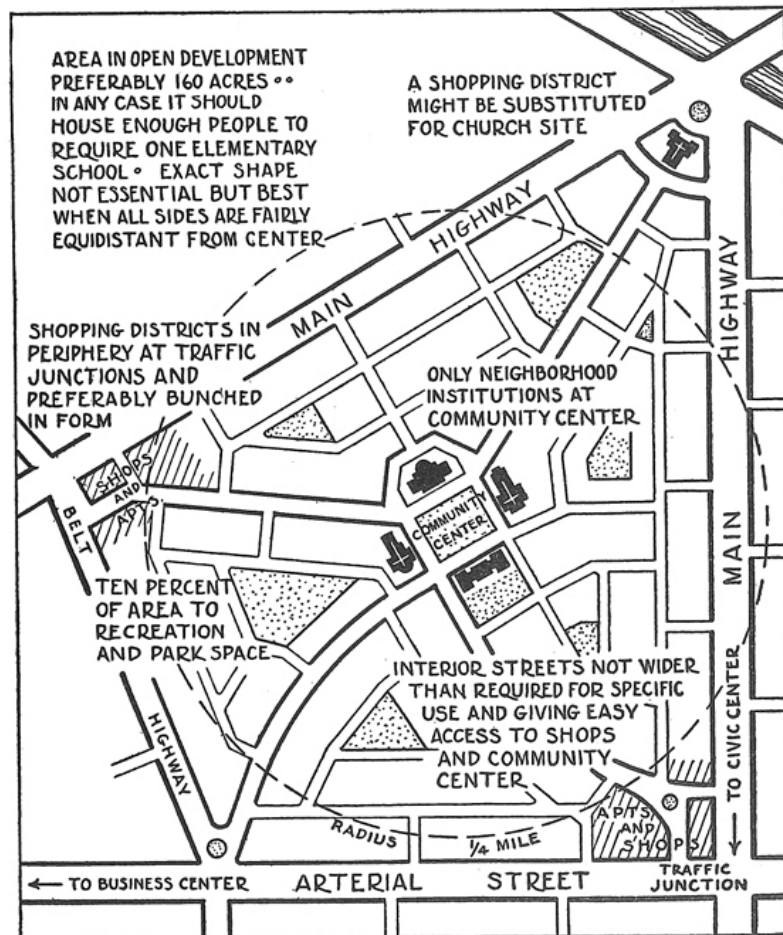


Figure 2: The Neighborhood Unit by Clarence Perry
Source: New York Regional Plan, Vol. 7 (1929).

Promote Neighborhood Walkability through Accessibility to Community Facilities

Litman (2003: p.4) defined accessibility as “the ability to reach desired goods, services, and activities”. Community facilities are the local places where residents obtain goods, get services and enjoy communicative activities. Much research has indicated that a cluster of community facilities at locations well connected through a path network can promote walking behaviour (Frank & Pivo, 1994; Cervero, 1997; Saelens, Sallis & Frank, 2003; Frank, Andresen & Schmid, 2004; Transport Research Board, 2005). Specifically, studies by Barton, Grant & Guise (2003) highlighted the significance of collocating people local provision of facilities to promote walkability as central to every neighborhood planning. They also identified 12 common community facilities that should be located within walking distance in neighborhood and gave corresponding accessibility criteria by different densities (Figure 3, ppha means persons per hectare).

Local facility	Illustrative catchment populations (to be adapted to local conditions and policies)	Minimum reasonable accessibility standards at different gross densities (assuming bendy routes)			
		40 ppha	60 ppha	80 ppha	100 ppha
Nursery/first school	2,000	600 m	500 m	400 m	400 m
Primary/middle school	4,000	800 m	700 m	600 m	500 m
Secondary school	8,000	1,200 m	1,000 m	700 m	700 m
Secondary school (large)	16,000	1,500 m	1,200 m	1,000 m	1,000 m
Health centre (4 doctors)	10,000	1,200 m	1,000 m	900 m	800 m
Local shop	1,500	500 m	400 m	400 m	300 m
Pub	6,000	1,000 m	800 m	700 m	600 m
Post office	5,000	800 m	700 m	600 m	600 m
Community centre	4,000	800 m	600 m	600 m	500 m
Local centre	6,000	1,000 m	800 m	700 m	600 m
District centre/superstore	24,000	1,900 m	1,500 m	1,300 m	1,200 m
Leisure centre	24,000	1,900 m	1,500 m	1,300 m	1,200 m

Figure 3: Minimum Accessibility Criteria for Compact Neighborhood

Source: Shaping Neighborhoods for Local Health and Global Sustainability

Beyond Walkability

Along with promoting walkability, planning in US has also shifted from automobility-focus to accessibility-centered on the ground that emphasizing accessibility could reduce automobile dependence and gas emission, boost economic growth, and improve the life quality (Cervero, 1997; Levine & Garb, 2002; Bertolini & le Clercq, 2003). In 1993, Transit-oriented Development (TOD) was introduced in Calthorpe's book: *The New American Metropolis*, and then became the main approach to address urban issues. Calthorpe defined "TOD is a mixed-use community within an average 2,000-foot walking distance of a transit stop and core commercial area" (1993: p.56). Key factors of TODs are summarized as follows:

- place commercial, housing, jobs, parks, and civic uses within walking distance of transit stops
- create pedestrian friendly street networks which directly connect local destinations
- provide a mix of housing types, densities, and costs
- preserve sensitive habitat, riparian zones, and high-quality open space
- make public spaces the focus of building orientation and neighborhood
- encourage infill and redevelopment along transit corridors within existing neighborhoods

With the increasing attention on accessibility, society also realize that mobility varies by age groups. Accessibility to community facilities is fundamental for seniors and children who rely more on walking and public transit. Therefore, building age friendly communities has become a common vision for US cities. The Planning Across Generations survey conducted by Cornell researchers in 2013 indicated that although 93% of government leaders across the country recognized services for elderly and children are necessary, there are significant services disparity across metropolitan, suburban, and rural area due to various needs (Warner & Zhang, 2019). Seniors and children in suburban and rural areas require new models or approaches to service delivery.

Various research is conducted to explore how local governments can provide high-quality services for seniors and children both in urban and rural communities. Choi and Warner (2015) highlight that in the aim of meeting the needs of all ages, local government, schools, community institutions, as well as volunteer organizations need to work together, especially in suburban and rural areas where cross-agency partnerships are most needed. Warner and Zhang (2021) argued that collaboration is the key on promoting age-friendly communities. Using regression models, their research highlighted that communities with higher level of engagements and more cross-agency collaboration do provide more public services for residents' needs. In 2019, Warner and Zhang designed another national survey Planning for All Ages with a focus on child-friendly zoning and services across US. Built on structural equation models, their results again emphasized the importance of engagement, "communities with more engagement of families with children and youth and a common vision across generational, race, and ethnic lines report higher levels of child-friendly zoning and services." (2020: p,1). Also, increasing focus on age-friendly planning could also improve market service delivery. Warner, Homsy, and Morken (2017) conducted OLS regression analysis on planning and service delivery for seniors by local governments and market actors across the US. The results showed that planning help boost the market potential and elder participation in planning can trigger the market delivery on senior services.

Empirical Research

Community Life Circle in Shanghai: Pilot Zone for a New Model

Shanghai was one of the first Chinese cities that applied the concept of the 15-minute Community Life Circle to planning practice. Building a 15-minute community-life circle is one of the most crucial goals of urban development stated in the Shanghai Urban Master Plan (2015–2040). In 2016, the Planning Guidelines of a 15-Minute Community-Life Circle (henceforth referred to as the Guidelines) emphasized that a 15-minute community life circle will be the basic unit for Shanghai to organize community life in the next few years. It will provide citizens essential public facilities and public activity space needed for everyday life within a 15-minute walking distance.

According to the Guidelines, all public facilities are divided into two categories based on their necessity. One is the Life Guarantee Public Facilities, which are the facilities that must be set up to meet the basic living needs of community residents. The other are Quality Improving Public Facilities¹ that can be selectively set up according to residents' demographic structure and needs to improve their quality of life. Since the Life Guarantee Public Facilities are critical to residents' lives, the research and improvement on them will be more conducive to the residents. This research will mainly focus on the construction of Life Guarantee Public Facilities in Shanghai.

Specifically, Life Guarantee Public Facilities include 6 major aspects such as culture, education, healthcare, elderly care, sports, and business. Specific facilities include community activity centers, youth activity centers, kindergartens, primary schools, junior high schools, high schools, community health services centers, health service station, community nursing homes, adult day care, elderly activity rooms, gyms, swimming pools, stadiums, and indoor food, as shown in the Chart 1 and Figure 4 below.

¹ According to Planning Guidance of 15-minute community-life circle, Quality Improving Public Facilities includes 5 major aspects such as culture, education, healthcare, sports, and business. Specific facilities are chess and card rooms, community schools, childcare centers, housekeeping services, home appliance repairs, community service consultations, community cafeterias and express delivery stations.

Table 1: Construction Standard of Community Life Guarantee Public Facilities

	Walking Distance	Project	Minimum Scale (m ²)		thousand people indicator(m ²)	
			Building Area	Land Area	Building Area	Land Area
Culture	15 min	community activity centers	4500		90	100
		youth activity centers	4500		90	100
Education	5	kindergartens	5500	6490	550	649
	10	primary schools	10800	21770	432	870
	15	junior high schools	10350	19670	414	787
		high schools	13300	26800	266	536
Healthcare	15	community health services centers	3000	4000	60	80
	10	health service station	150-200	/	8-Jun	/
Elderly Care		community nursing homes	3000	/	120	/
	10	adult day care	200	/	40	/
	5	elderly activity rooms	200	/	60	/
Sports	15	gyms	1800	/	36	40
		swimming pools	800	/	16	60
		stadiums	600	/	/	140
Commerce	10	indoor food market	1500	/	120	148

Source: *The Planning Guidelines of 15-Minute Community-Life Circle Shanghai, 2016*

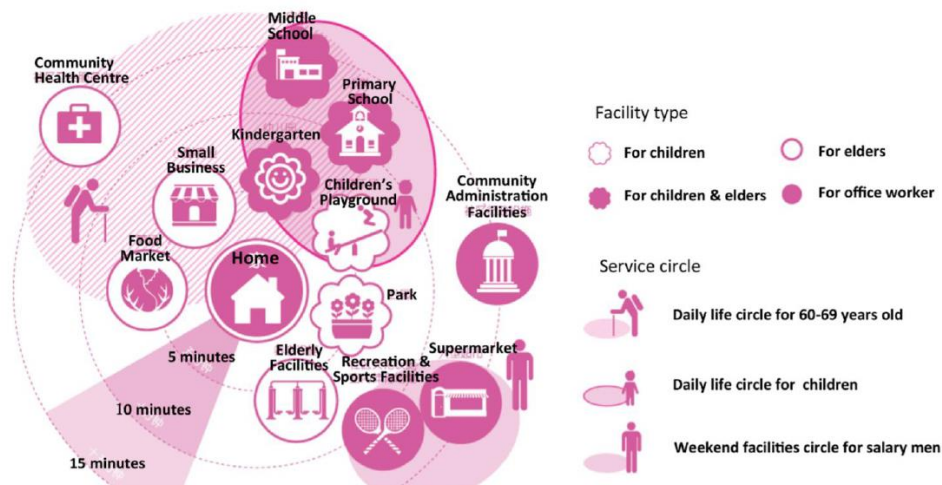


Figure 4: Diagram of 15-minute Community Life Circle

Source: *The Planning Guidelines of 15-Minute Community-Life Circle Shanghai, 2016*

It is worth noting that in the actual application process, the construction of the 15-minute living circle needs to meet certain conditions, as shown in Figure 5. In a circle with a radius of 15 minutes walking distance and an area of about 3 square kilometers, the resident population should be 50,000 to 100,000, and the population density should be 20,000 to 27,000 per sq kilometer.

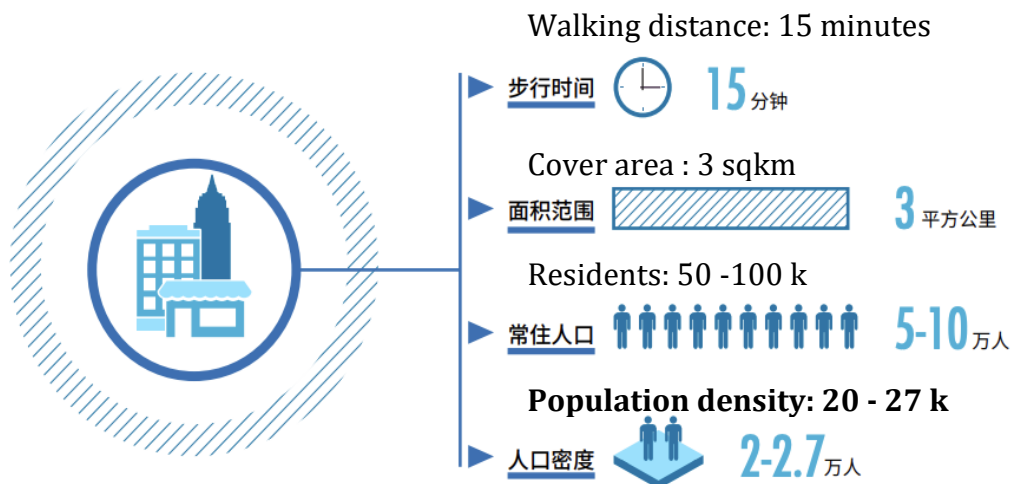


Figure 5: Scope of Application of Community Life Guarantee Public Facilities
Source: *The Planning Guidelines of 15-Minute Community-Life Circle Shanghai, 2016*

Why is it a mirage?

Although Shanghai municipal government attaches great importance to the 15-minute community life concept and aims to achieve 85% coverage by 2025, 99% by 2035, the reality is different. Ma, et al. (2020) evaluate the distributions of 13 kinds of essential public facilities in about 30,000 neighborhoods in Shanghai using GIS, kernel density, and buffer zone analysis. The results imply no facility of any kind has a coverage rate of 100% in the whole city. Furthermore, there is a serious imbalance in the distribution of various public service facilities between the central city and outlying suburbs, districts in the center city have higher coverage ratios of all types of life guaranteed public facilities than districts outside the center city. (Ma, et al., 2020; MetroDataTech, 2018; The Paper, 2020).

Such a huge gap in life circle development between the center city and outlying area in Shanghai is due to incomplete top-level design; there is a mismatch between the vision planners pictured and the reality citizens live. Based on the Guidelines, the 15-minute community life circle planning has a certain service scope, specifically, population density needs to be at least around 20,000 per sq kilometer. According to the 2020 Shanghai Statistical Yearbook, less than half of the total (7 out of 16) districts have a population density around 20,000 per sq kilometer, as shown in Figure 6.

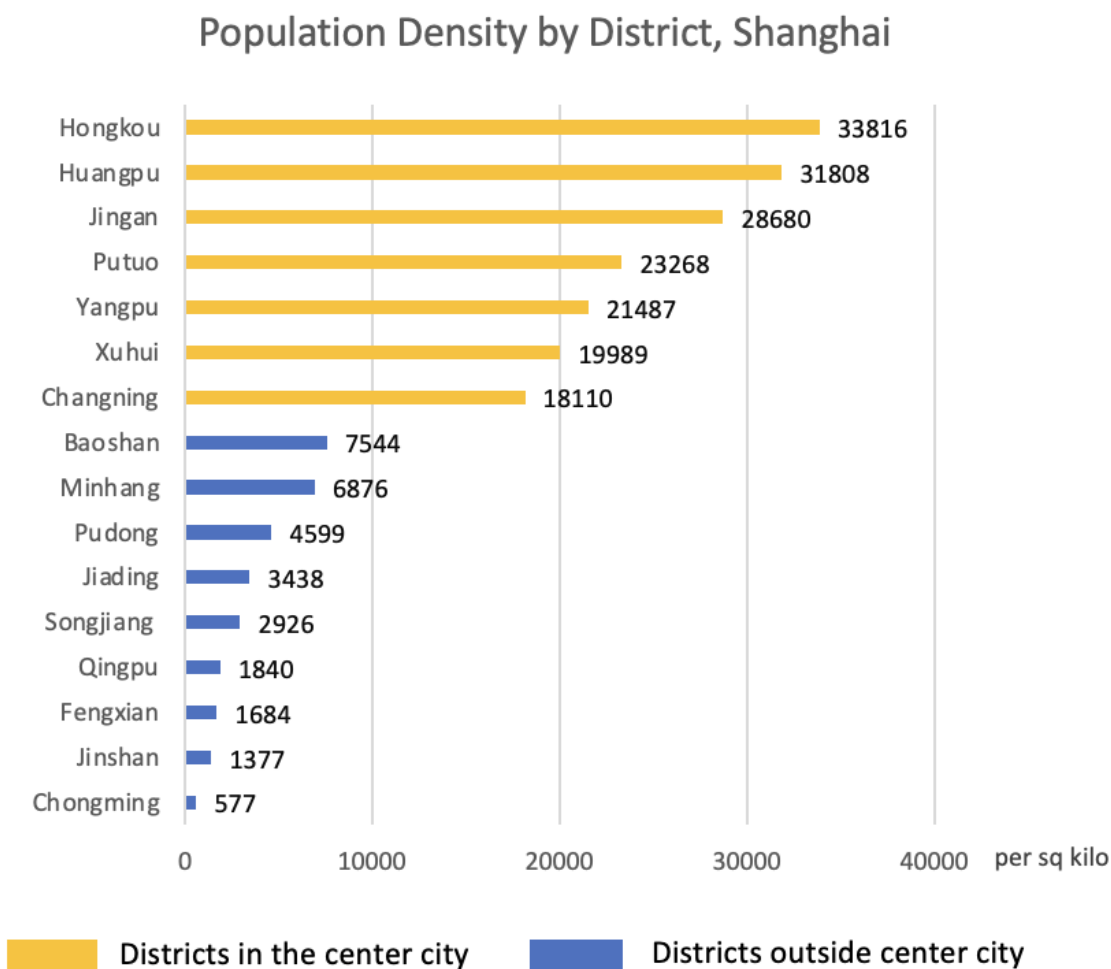


Figure 6: Shanghai Population Density at District Level 2019

Source: 2020 Shanghai Statistical Yearbook

Geographically, all the districts in center city meet this requirement while all the districts outside the center city fail to meet it (Figure 7). For these outlying districts, the public facilities projects and construction standards would refer to the Technical Guidelines for Detailed Planning of Shanghai Municipality in which walkability is not well integrated. Notably, more than 70% of the city's population lives in these outlying districts. In other words, over 70% of total population in Shanghai is being overlooked during the construction of community life circle to a certain extent.

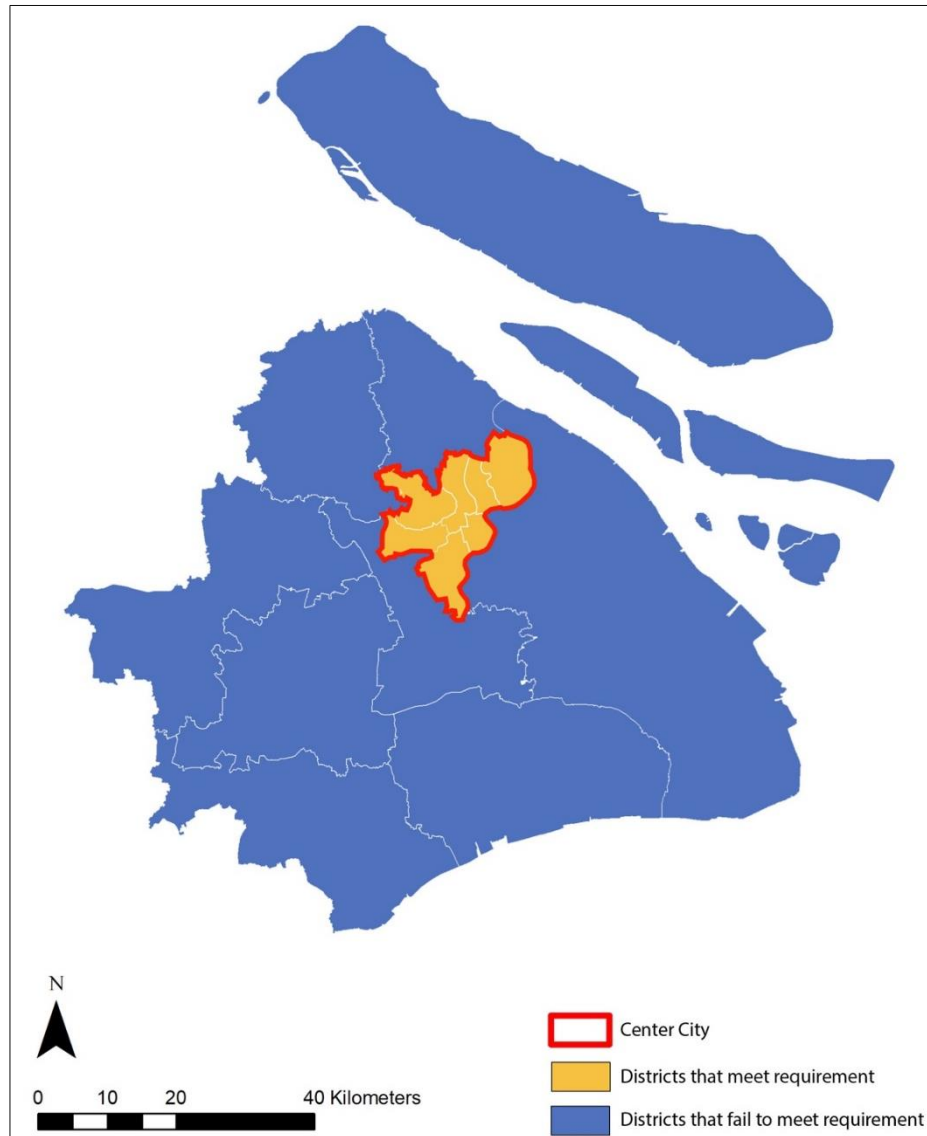


Figure 7: Map of Shanghai Population Density at District Level 2019

Source: 2020 Shanghai Statistical Yearbook, produced by the author

The 15-minute community life circle model fails to meet the needs of residents, taking community clinic as an example. With the growing elderly population in Shanghai, more than one-third of the registered population in Shanghai is over 60 years old, making it the city with the largest proportion of the elderly population in the country. However, spatial analysis based on ArcGIS yields a frustrating result.

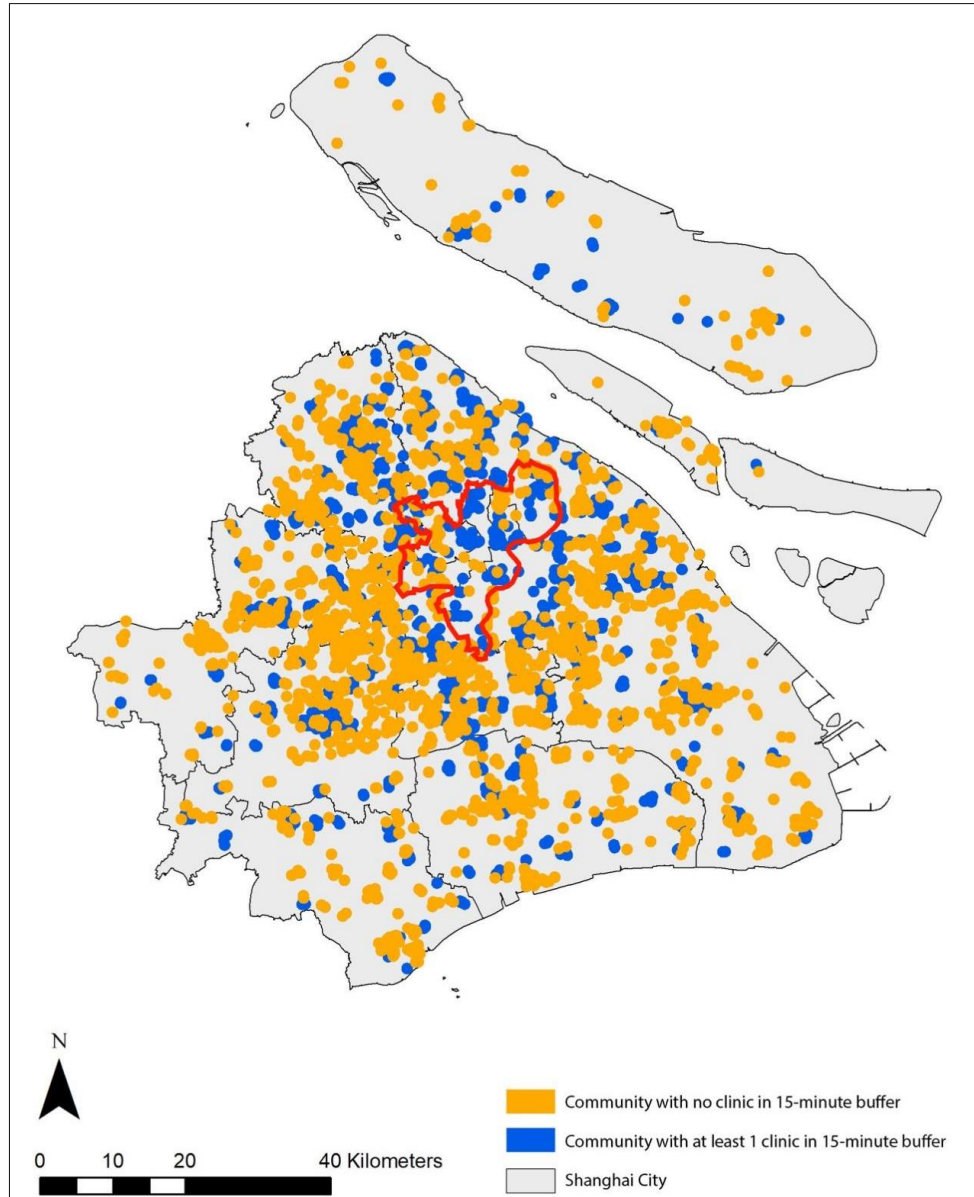


Figure 8: Distribution of Community Clinic in Shanghai 2020

Source: Open Street Map, GIS produced by the author

As Figure 8 shows above, city area is colored in grey, the blue circles represent the buffers of a 15-minute walking distance of the clinics while the yellow circles indicate there is no clinic within a 15-minute buffer. The results show that 63% of the community (the percentage of yellow circles) has no community clinic with 15-minutes walking distance. At the district level, Hongkou district has the largest elderly population concentration of 41% (Figure 9), resulting in significant demand for high-quality senior services. On the supply side, previous GIS evaluation shows that among 26 communities within this district, nearly half of them (12 out of 26) had no community clinic with 15-minute walking distance (Shanghai Statistics Yearbook 2020). Also, all community clinics in Hongkou district are located in the south, resulting in low service delivery for residents living in the north (Figure 10).

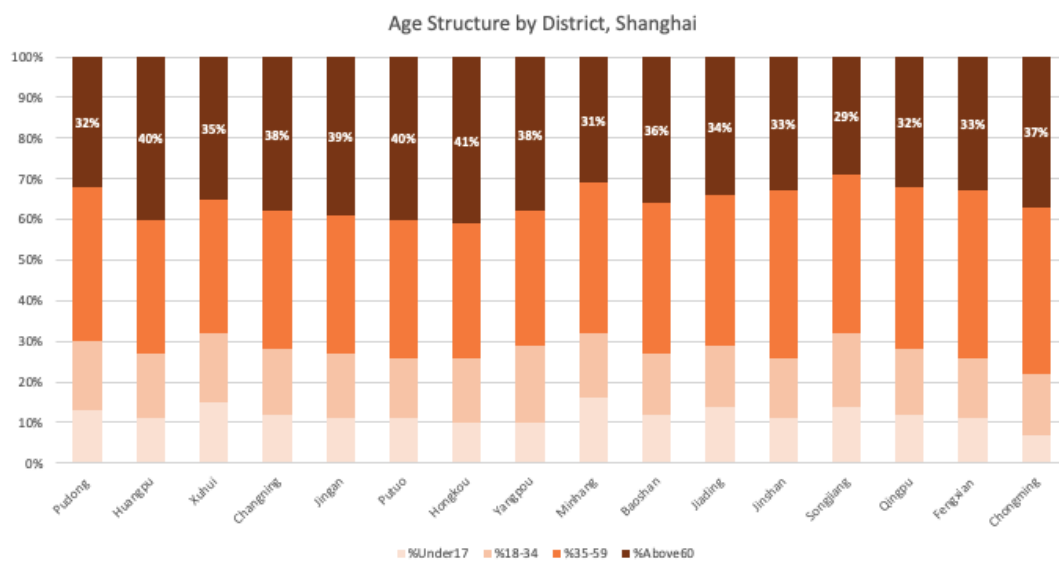


Figure 9: Age Structure by District, Shanghai

Source: Shanghai Statistic Yearbook 2020, post production by the author

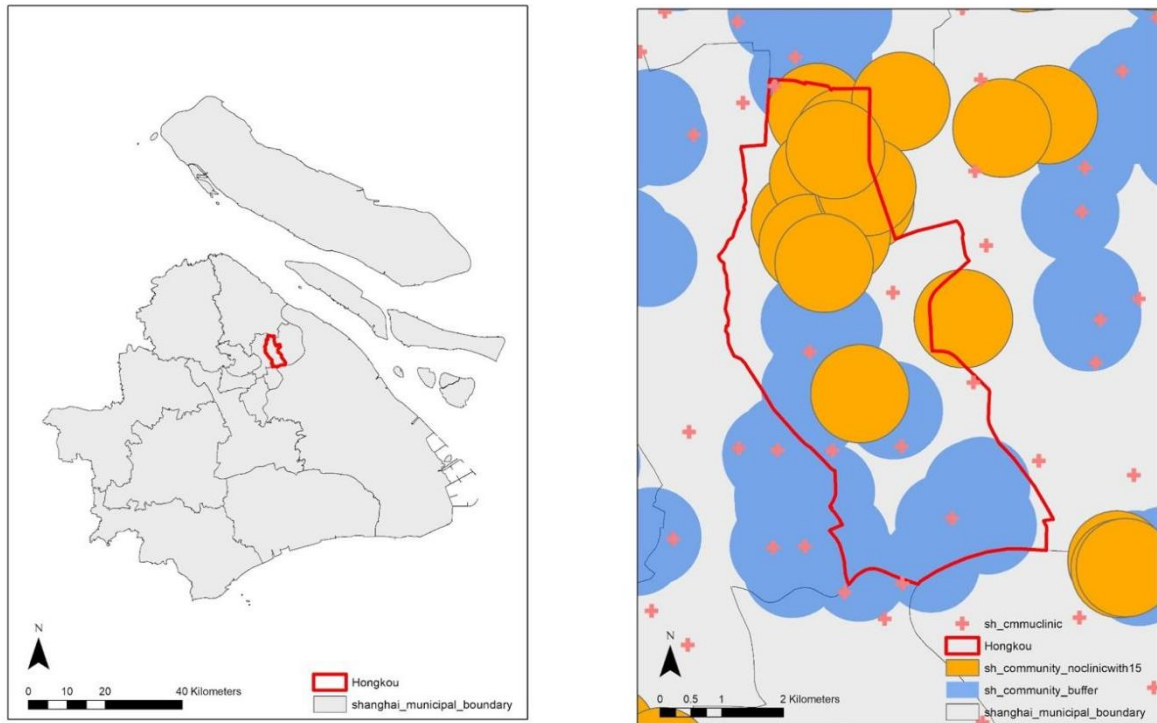


Figure 10: Hongkou District Location and The Distribution of Community Clinics

Source: Open Street Map, GIS produced by the author

The 15-minute model also led to a huge disparity in public facilities between the center city and the outer areas. As the map shows, yellow circles are denser in areas outside the center city. Statistically, 65.2% of communities in the outlying area have no community clinic within the 15-minute buffer, while only 31.3% communities in the center city lack such clinics. The map of Shanghai Spatial Structure (Figure 11) in the Shanghai Master Plan (2017-2035) indicates the demand for community public services to a certain extent. Although the outlying districts have lower population densities, suburbs close to the central city are still dense urban areas with demand for convenient community services. In addition to the areas close to the central city, there are also massive amounts of urbanized areas within the outlying suburbs. If we compare this map with the evaluation map of community clinic accessibility, we will find that urbanized areas outside the central city are severely underserved.



Figure 11: Shanghai Spatial Structure

Source: Shanghai Master Plan (2017–2035)

Such great spatial disparity exists because construction standards in the top-level design overlook the difference between the urban and suburban areas. Community services in the center city are planned and constructed based on The Planning Guidelines of 15-Minute Community-Life Circle. While in the outlying area, another guideline, Technical Guidelines for Detailed Planning of Shanghai Municipality, is utilized, in which, the construction standard for community clinics is to build one in each subdistrict or town, with little consideration of pedestrian accessibility and walkability.

To sum-up, Shanghai overlooks the huge difference between the center city and outlying areas in terms of population density and social structure and tries to achieve diversified and equitable access to community services using a fixed physical model, which leads to the highly unbalanced distribution of public facilities. Meanwhile, considering the huge difference in population density within the city, applying a 15-minute community life circle to the entire city is neither feasible nor sustainable. Achieving an even distribution of 15-minute community facilities will greatly increase expenditures.

Also, the 15-minute community life circle model is a static spatial model mainly focusing on walkability, which is less suitable for modern urban environments. More dimensions could be added to ensuring access to public services. In addition to focusing on the construction of physical space, social cooperation can also play a positive role to improve public outcomes, such as community governance, co-location, and cross-agency collaboration. Furthermore, customized modes of transportation and the proliferation of network technologies greatly expand the service radius of public services, making the services based only on walking distances unsuitable.

Discussion

Can it not be a mirage? Taking Community Clinics as an Example

Previous analysis indicates that Shanghai has a great gap in providing community services. Thus, there is an urgent need to address the match between supply and demand matching through more innovative ways than just the 15min community life circle. Using community clinic service in Hongkou district as an example, the next section will illustrate how to improve accessibility of community services from two dimensions: On the one side, utilizing community governance, co-location, and cross-agency collaboration to reduce the supply-demand gap within 15-minute-walking buffers; On the other side, integrating paratransit and delivery into community services supply, which can exceed the boundary defined by walking-distance alone.

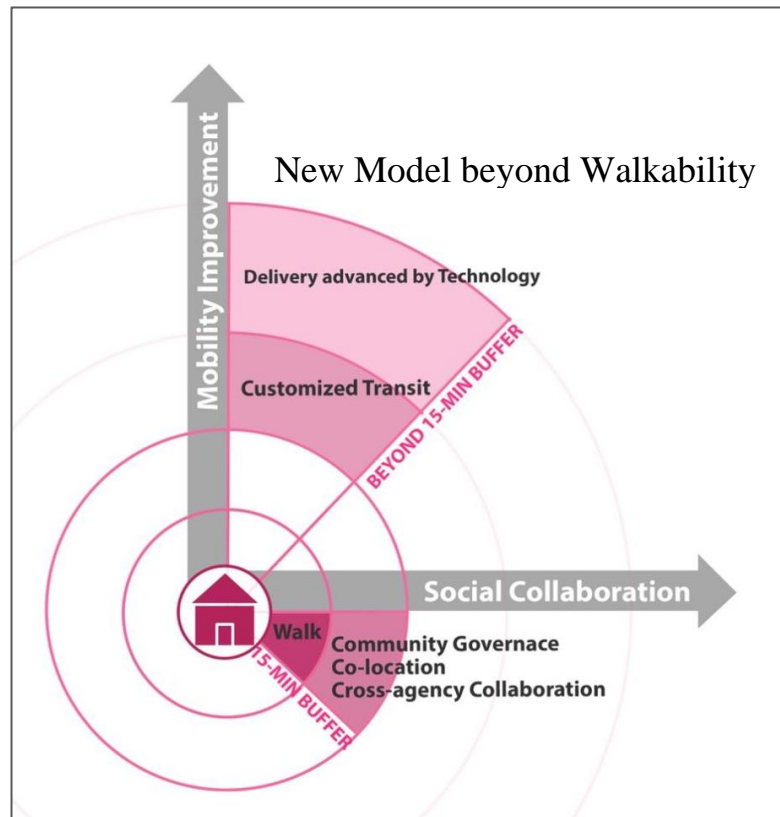


Figure 12: Model for Providing Community Services Beyond Walkability

Community Governance

As people-centered, bottom-up planning approaches become increasingly important in delivering community services, the value of community governance also rises. Devolving power to the community level can improve the quality of community services. Communities with authority can customize their services according to their different needs, select qualified enterprises with advantages in technology, management experience and powerful financing channels to better provide high-quality and efficient public services to the community. Furthermore, emphasizing community governance enhances residents' sense of identity and belonging to the community, boost their initiative to participate in community affairs, and improve governance efficiency (Gao, 2009; Xu & Zhang, 2019).

Co-location

Faced with the severe land shortage in urban area, co-location can be an efficient way to provide community services. Using existing community social hubs, such as a community center to combine various services in the same place can also improve service accessibility for the target population. Some practices have already been explored in Shanghai. In Yangpu District, the Xinjiangwan Sub-district Office cooperated with Internet platform companies and NGOs to build a community service center. Six major services are offered in this center, in the areas of life convenience, information inquiry, senior service, welfare and health. More than 120 convenience services are provided, including 20 free services. In this community complex, the elderly can communicate with senior specialists online via video and generate electronic prescriptions, which reduces their burden on commuting. The center is also equipped with health monitoring machines to measure body temperature and blood pressure and give seniors health advice based on the results. Considering that the elderly are not good at using smart devices, the center also provides online purchasing services, online rental services and smart device teaching courses for the elderly (Shanghai Observer, 2021). The "one-stop" service complex not only saves the cost

of land, but also improves the outcome of public services, enabling the elderly to enjoy more services within a closer distance.

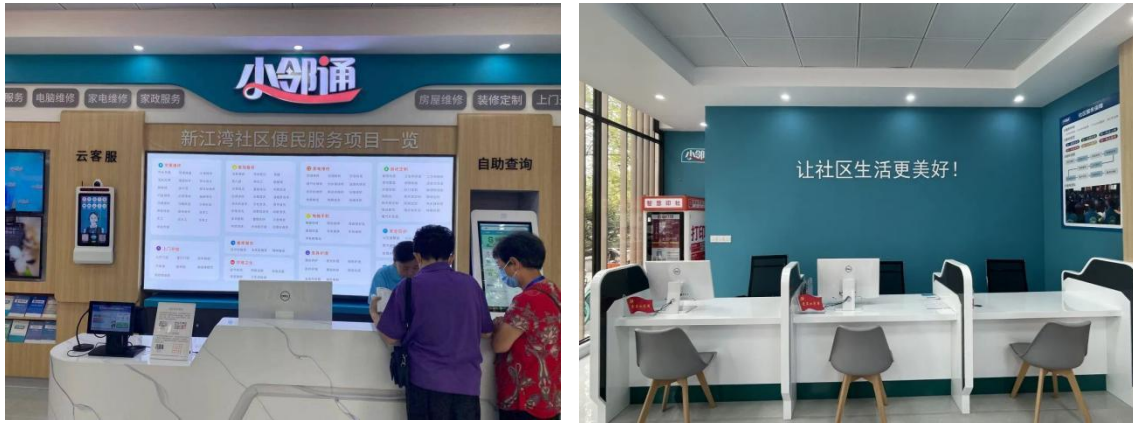


Figure 13: Photos of Co-location Practices in Xinjiangwan Subdistrict, Shanghai

Source : https://www.sohu.com/a/486321457_120244154

Cross-agency Collaboration

In addition, cross-agency collaboration might be the key to promote public services for residents', especially for seniors. With the growing elderly population in Shanghai, the needs for elderly care and health care increases. However, elderly care and medical services in China are not well integrated because they are managed by different departments. Once the elderly become ill, they need to travel among families, hospitals, and nursing homes, which not only delays treatment but also increases the family's burden (Huang & Meng, 2014). Seniors urgently need a place nearby their homes where they can access both elderly care and medical services. The Linli Hui (邻里汇, meaning community complex) project is a case in Xuhui District improving the quality of public services through the mechanism of "government-led, cross-agency collaboration". The Linli Hui project operates under a "1+X" model, that is, the sub-district offices authorize one professional operating agency to manage the service facilities, and at the same time encourage a wide range of enterprises and non-profit organizations to participate (Shanghai Xuhui People's Government, 2017). For example, the Caohejing Sub-district Office in Xuhui District, Shanghai has signed a contract

with Shanghai Soyound Company as the management agency for its community service operation. Notably, Soyound Company is jointly funded by Shanghai Estate Group, Vanke Shanghai and Shanghai University of Traditional Chinese Medicine, which enable the company to provide high-quality medical care and medical services for seniors. The Linli Hui in Caohejing sub-district represents a case of the combination of medical care and nursing home for seniors who might not live on their own or who might need professional medical care after surgery, injury or illness (NetEase, 2017).



Figure 14: Photos of Linli Hui project in Xuhui district, Shanghai

Source: <https://www.163.com/dy/article/D5CDR5QP05158B02.html>

Paratransit

Access to public services can be further enhanced by relying on the well-established infrastructure and diverse means of transportation in cities, exceeding the boundary limited by 15-minute walking distance. Taking the community clinic in Hongkou district as an example, for those living in the north, not only is there no community hospital within a 15-minute walk, but it is also very inconvenient to take public transportation. For example, if an

elderly person living in community A would like to go to clinic B by bus, as shown in the above snapshot, he/she would need to walk 650 meters (0.4 mile) to the bus station, then wait for the bus running every 15 minutes, take one stop and then walk for another 650 meters.

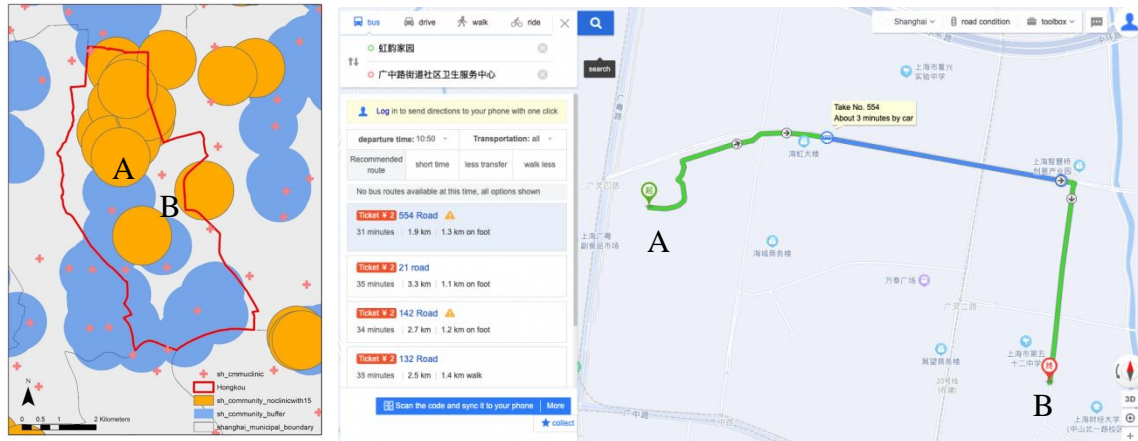


Figure 15: Inconvenient Public Transit to Community Clinic, Hongkou District, Shanghai

Source: Baidu Map

Such time-consuming and frustrating experience in taking public transit is widespread. Most Chinese cities lack integration of land use or public service facilities and bus station planning because transit and land use are planned and managed by different departments (Peng et al., 2012). Hence, considering that 63% communities have no community clinic with 15-minutes walking distance, there is a need for new transportation methods to promote public services' accessibility, especially for seniors with lower mobility.

Paratransit can be supplementary to the fixed-route transit system. As a door-to-door transport service, it can offer a more comfortable and easy way for seniors to travel between community facilities and home. During the pandemic, paratransit was applied in several communities in Shanghai to help seniors get vaccinated. For example, Shanghai Nanqiao subdistrict signed a contract with a local car rental company to rent three buses during the pandemic. Seniors living in this subdistrict could take the community bus at their doorstep

and go to the community medical center to get vaccinated. In addition, each bus was equipped with two community volunteers who could help seniors get on and off the bus and take care of them during the ride. Seniors with disabilities could also apply for family accompaniment. After the vaccination was completed, the elderly would be sent back to their community by bus. Beyond the pandemic, the paratransit service could be applied to more communities so that more residents can have higher accessibility to more community services (Guangming Net, 2022).



Figure 16: Photos of paratransit in Nanqiao, Fengxian District, Shanghai

Source: Baidu Photo

Delivery Technology

The application of the Internet delivery technology could also improve the accessibility of community services. By incorporating traditional community health service with the Internet, services such as signing with the family doctor², health management, and drug distribution for residents could be carried out through online platforms. For example, Tianshan Community in Changning District, Shanghai has been actively exploring the combination of community health services and the Internet since 2017. The community contracted with certified doctors and nurses who are required to have more than five years

² Although family door system has been implemented in developed countries for decades, China has just begun to build this system in recent years. In 2018, the central government “Guiding Opinions on Regulating the Management of Family Doctor Contract Services” and Shanghai has prioritized to apply family doctor system (Dai et al, 2021).

work related experience. Residents living in Tianshan community can make appointments through the mini-program on WeChat platform or telephone, then doctors and nurses will provide door-to-door services. The total fee of single door-to-door service consists of visiting fees and treatment fees, which can be reimbursed by medical insurance in a certain proportion. The services provided online include three categories: basic home services (such as indwelling/removal catheter care, pressure ulcer care and remote electrocardiography), home rehabilitation training and home-based traditional Chinese medicine rehabilitation (such as acupuncture, cupping, and Chinese herbal treatment) (Shanghai Observer, 2019). With the advancement of technology and the increase of Internet application scenarios, residents could be able to enjoy more efficient and convenient services at the community level in the near future, beyond community health services.

Reflection

As the central government began to devolve power to the subdistrict level since 2013, subdistrict offices gained more authority in decision-making, such as community services supply. However, it is worth noting that as the lowest government unit, subdistrict offices has extremely human, material, and financial resources that can be mobilized. Therefore, higher governments also need to strengthen support while delegating power. How central government could better support community governance might be a research topic worth examining in the future.

Furthermore, although stimulating community governance could improve service quality within 15-minute circle, the governance capacity varies by communities. The Linli Hui project in Xuhui District is an innovative practice in cross-agency collaboration. Notably, its success is inseparable from the high capacity of its subdistrict officials who are capable of negotiate with various stakeholders including private partners and civil organizations, structure legal contracts and push a deal forward. Besides, they are also capable of day-to-day management and control the decision-making process. Such

governance capacity might be rare in rural area, which can also be an obstacle in providing high-quality community services.

Besides the supply mechanism, more focus might need to attach to the service content in future study. Not only population density, but communities across the city are also in different built environment, diverge in age structure, income level and education background. Such differences between communities lead to differences in demand for community public services. For some areas with more tourists, such as communities near The Bund in Huangpu District, their community centers might need to provide service for residents as well as for tourists living in residence, such as information centers. To sum up, the demand for community services varies from place to place, so the content supplied by government should also be adjusted accordingly.

Conclusion

As the concept of a "15-minute community-life circle" has been widely recognized as the new model for providing community public services, massive relative planning projects have been taken China, especially in Shanghai as the pilot zone. However, the spatial analysis shows that people's needs in the life circle in Shanghai are far from being met. In addition, the current model is top-down and homogeneous with a prerequisite for population density and fails to tackle the differences among communities, resulting in huge disparity in the community facility supply between the center city and the suburban areas.

Shanghai is the most modernized city in China, with a GDP over 4 trillion yuan, ranking as the top of all Chinese cities (Statista, 2021). Shanghai is the second most densely populated city in the country (after Shenzhen), and its central urban area has the highest population density in the country (China Statistical Yearbook 2021). Compared with other cities, Shanghai can deploy more human and material resources in the construction of public services. If the 15-minute walk life circle cannot be realized in Shanghai, it is even less likely to be implemented nationwide.

This paper proposes an alternative community life circle model with a focus on institutional change. Instead of focusing just on fixed physical distance parameters, the new model highlights the importance of social collaboration, customized transportation modes and the application of technology. This paper provides a reference to improve the current 15-minute community life circle planning, so that it can be a more practical model for providing community public services, to promote age-friendly sustainable development.

REFERENCES

- Abley, S. (2005). *Walkability Scoping Paper*. Christchurch New: Abley Transportation Consultants.
- Ahmad, E. (2008). Taxation Reforms and the Sequencing of Intergovernmental Reforms in China: Preconditions for. *Public Finance in China*, 95.
- Barton, H., Grant, M., & Guise, R. (2003). *Shaping Neighbourhoods: A Guide For Health, Sustainability And Vitality*. London: Spon.
- Bertolini, L., & Le Clercq, F. (2003). Urban development without more mobility by car? Lessons from Amsterdam, a multimodal urban region. *Environment and Planning A: Economy and Space*, 35(4), 575–589.
- Bjorklund, E. M. (1986). The Danwei: Socio-Spatial Characteristics of Work Units in China's Urban Society. *Economic Geography*, 62(1), 19–29.
<https://doi.org/10.2307/143493>
- Bray, D. (2005). *Social Space and Governance in Urban China: the Danwei System from origins to reform*. Stanford University Press.
- C40 Mayors' Agenda for a Green and Just Recovery. (n.d.). Retrieved March 21, 2022, from https://www.c40knowledgehub.org/s/article/C40-Mayors-Agenda-for-a-Green-and-Just-Recovery?language=en_US
- Calthorpe, P. (1993) *The Next American Metropolis: Ecology, Community, and the American Dream*. Princeton Architectural Press, New York.
- Caohejing Linli Hui opened, providing one-stop solutions for elderly care, health and life Services. (2017, December 11). NetEase. Retrieved Apr 27, 2022, from <https://www.163.com/dy/article/D5CDR5QP05158B02.html>
- Cervero, R. (1997). Paradigm shift: from automobility to accessibility planning. *Urban Futures* (Canberra), 22, 9.
- Chai, Yanwei., Chen, Lingji., Zhang, Chun. (2007). Transformation of Danwei System: an Angle of View on City Changes in China. *World Regional Studies* 16(4), 60-69.
- Chai, Yanwei., Li, Chunjiang. (2019). Urban life circle planning: From research to practice. *City Planning Review* 43(5), 9-16.
- Chai, Yanwei. (1996). Danwei-based chinese cities' internal life-space structure —— a case study of lanzhou city. *Geographical Research* (1), 30-38.
- Chai, Yanwei. (2014). Connotation Interpretation and Action Strategy of New Urbanization from the Perspective of Humanism[J]. *Beijing Planning Review* (6), 34-36.

- Chen, Rongzhuo., Shen, Lujing. (2016). Public service innovation in urban communities in China: local experience and development trends. *Issues of Contemporary World Socialism* 1, 28-44.
- Chen, Weidong., Zhang, Dawei. (2007). A Research into the Present Situation and Plan Implementation of the Urban Public Service Facilities' Disposition in China. *Human Geography* 22(5), 29-33.
- China: *GDP of Shanghai 2021*. (2021, Mar 3). Statista. Retrieved May 1, 2022, from <https://www.statista.com/statistics/802355/china-gdp-of-shanghai/>
- China Statistical Yearbook 2021*. (n.d) National Bureau of Statics of China. Retrieved Apr 28, 2022, from <http://www.stats.gov.cn/tjsj/ndsj/2021/indexeh.htm>
- Choi, M. and Warner, M.E. (2015). "Collaboration: The key to building communities for all generations", in *The Municipal Yearbook 2015*, Washington, D.C.: International City County Management Association.
- Dai, H., Tang, L., Wang, Z., Sun, X., Zhang, F., Zhu, M., Huang, Q., Hu, B., Wang, L., Fu, X., Luo, L., & Shi, J. (2021). Facilitate Signing with the Family Doctor: A Study of the Practice in Shanghai, China. *International journal of general medicine*, 14, 6907–6917. <https://doi.org/10.2147/IJGM.S332890>
- De Chiara, J. and Koppelman, L. (1929). *Urban Planning and Design Criteria*. New York: Litton Von Nostrand Reinhold Company
- Frank L, Andresen M, Schmid T. (2004). Obesity relationships with community design, physical activity, and time spent in cars. *Am J Prev Med*. 27(2), 87-95.
- Frank, L.D., Pivo, G., (1994). Impacts of mixed use and density on utilization of three modes of travel: single-occupant, transit, and walking. *Transportation Research Record* 1466, 44-52.
- Frank, L. D., Sallis, J. F., Conway, T. L., Chapman, J. E., Saelens, B. E., & Bachman, W. (2006). Many Pathways from Land Use to Health: Associations between Neighborhood Walkability and Active Transportation, Body Mass Index, and Air Quality. *Journal of the American Planning Association*, 72(1), 75–87. <https://doi.org/10.1080/01944360608976725>
- Gao, Yubing. (2009). *Research on the supply mode of public services in urban communities in my country*. Beijing: Capital University of Economics and Business
- Hansmann, Henry. (1987). *Economic theories of nonprofit organization. The nonprofit sector: A research handbook*. Edited by Walter W. Powell and Richard Steinberg, 27-42. New Haven, CT: Yale University Press.

- Has your community met the standard of Fifteen-minute life circle?. Weixin Official Accounts Platform.* (2017, Dec 12). MetroDataTech. Retrieved April 23, 2022, from http://mp.weixin.qq.com/s?__biz=MzAwNTkyNDExOQ==&mid=2247486478&idx=1&sn=b7a443ca5cf36c0b570ee2f23fc834e4&chksm=9b147876ac63f1601a89a70027631a4eb0cdbf5cf345857602c86916672a935f3816bba1880c#rd
- He, Wei. (2018). *Constructing the Community of Governance: Research on the Negotiating and Consulting Governance in Urban Community - Taking Putuo District in Shanghai as Example*. [Doctoral Dissertation, East China Normal University]
- How the '15-Minute City' Could Help Post-Pandemic Recovery.* (2020, July 15). Bloomberg.Com. <https://www.bloomberg.com/news/articles/2020-07-15/mayors-tout-the-15-minute-city-as-covid-recovery>
- Hu, Pan., Wang, Xingping., Zhang, Jianzhao. (2013). Problems Of Public Service Facilities And Its Optimization Strategies: A Case Study On The Nanjing Fringe Area Based On Residents' Demand. *City Planning Review* (10), 77-83.
- Huang, Youqin. (2005). From Work-unit Compounds to Gated Communities: housing inequality and residential segregation in transitional Beijing. *Restructuring the Chinese city: changing society, economy and space*. London: Routledge.
- Huang, Jiahao., Meng, Fang. (2014). Integrating pension service with medical service for the elderly: Necessity, dilemmas and solutions. *Chinese Journal of Health Policy*, 7(6), 63-68.
- "Internet + Nursing" has been testing the waters in Shanghai for more than two years: which explorations are popular and which bottlenecks must be broken through.* (2019, Feb 21). Shanghai Observer. Retrieved May 1, 2022, from <https://www.shobserver.com/staticsg/res/html/web/newsDetail.html?id=134299&sid=67>
- Lan, Xiaohuan. (2021). *Chinese Government and Economic Development*. Shanghai: Shanghai People's Publishing House.
- Large space, full function! This center features a gorgeous appearance after the upgrade.* (2021, Aug 30). Shanghai Observer. Retrieved May 2, 2022, from <https://www.jfdaily.com/sgb/detail?id=524781>
- Lei, Cheng., Wang, Peng. (2019). From Fragmentation to Whole Process Governance: Community Service Facilities Provision and Improvement in Metropolitan Area. *Planners*14(35), 32-38.
- Levine, J., & Garb, Y. (2002). Congestion pricing's conditional promise: Promotion of accessibility or mobility?. *Transport Policy*, 9(3), 179–188.
- Li, Dehua. (2001). *Urban Planning Principle*. Beijing: China Architecture & Building Press.
- Li, Hanlin. (1993). The Integration Mechanism of Danwei Phenomenon and Urban Communities in China. *Sociological Studies* (5), 23-32.

- Litman, T. A. (2003). Economic Value of Walkability. *Transportation Research Record*, 1828(1), 3–11. <https://doi.org/10.3141/1828-01>
- Lu, Duanfang. (2005). *Remaking Chinese Urban Form Modernity, Scarcity and Space, 1949-2005*. London, New York: Routledge, 47-74, 124-141.
- Ma, Haiyun. (2018). Theoretical Connotation of “Co-construction, Co-governance and Co-shared Social Governance Pattern”: From the Perspective of Social Governance Innovation. *Journal of Beijing Jiaotong University (Social Sciences Edition)* 17(4), 137-145.
- Ma, Wenjun., Li, Liang., Gu, Juan., Zhu, Yonggang. (2020). Research on Spatial Layout and Accessibility of Infrastructural Public Service Facilities in the 15 Minute Life Circle, Shanghai. *Planners* (20), 11-19.
- Peng, Z.-R., Sun, D. J., & Lu, Q.-C. (2012). China’s Public Transportation: Problems, Policies and Future Prospective to Sustainability. *Journal of the Institute of Transportation Engineers*, 82, 36–40.
- Perry, C. A. (1929). City planning for neighborhood life. *Soc. F.*, 8, 98.
- Saelens, BE., Sallis, JF., Frank, LD. (2003). Environmental correlates of walking and cycling: findings from the transportation, urban design, and planning literatures. *Ann Behav Med.* 25(2), 80-91.
- Shanghai Fengxian Run Special Transit for the Elderly Over 60 to Get Vaccinated*. (2022, Apr 24). Guangming Net. Retrieved April 27, 2022, from https://politics.gmw.cn/2022-04/24/content_35685358.htm
- Shanghai Municipal People’s Government. (2018). *Shanghai Master Plan (2017–2035)*. <https://www.supdri.com/2035/public/ebook09.pdf>
- Shanghai Statistics Bureau. (2021). *Shanghai Statistical Yearbook 2020*. <https://data.cnki.net/area/yearbook/single/N2021030153?dcode=D09>
- Shanghai Urban Planning And Land Resources Administration Bureau. (2016). *Planning Guidance Of 15-Minute Community-Life Circle*. http://ghzyj.sh.gov.cn/zcfg/ghss/201609/t20160902_693401.html
- Shen, Chunli., Jin, Jing., Zou, Hengfu. (2012). Fiscal Decentralization in China: History, Impact, Challenges and Next Steps. *Annals of Economics & Finance*, 13(1).
- Solve the problem of parking, two communities in Shanghai encourage residents to participate in self-governance and co-governance*. (2021, Mar 18). XinhuaNet. Retrieved April 30, 2022, from http://www.xinhuanet.com/fortune/2021-03/18/c_1127223854.htm
- Sun, Daosheng., Chai, Yanwei. (2017). Study on the urban community life sphere system and the optimization of public service facilities: A case study of Qinghe area in Beijing. *Urban Development Studies*, 24(9):7-14, 25.

- Southworth, M.F. (2005). Designing the Walkable City. *Journal of Urban Planning and Development*, 131, 246-257.
- The Paper Questionnaire: citizen satisfaction survey of Shanghai 15-minute community life circle*. (2020, Nov 30). The Paper. Retrieved April 23, 2022, from https://www.thepaper.cn/newsDetail_forward_10198314_1
- Transportation Research Board. (2005). *Does the built environment influence physical activity? Examining the evidence*. Washington DC.
- Wang, Y. P., & Murie, A. (1999). Commercial Housing Development in Urban China. *Urban Studies*, 36(9), 1475–1494. <https://doi.org/10.1080/0042098992881>
- Warner, M. E., Homsy, G. C., & Morken, L. J. (2017). Planning for Aging in Place: Stimulating a Market and Government Response. *Journal of Planning Education and Research*, 37(1), 29–42. <https://doi.org/10.1177/0739456X16642824>
- Warner, Mildred E. and Xue Zhang. (2019). “Planning Communities for All Ages,” *Journal of Planning Education and Research*, forthcoming. doi.org/10.1177/0739456X1982805 <https://doi.org/10.1177/0739456X19828058>
- Warner, Mildred E., Xue Zhang. (2020). “Healthy Places for Children: the critical role of engagement, common vision and collaboration,” *International Journal of Environmental Research and Public Health*, 17(24), 9277; <https://doi.org/10.3390/ijerph17249277>
- Warner, Mildred E and Xue Zhang. (2021). “Serving an Ageing Population: Collaboration is Key,” *Local Government Studies*, 47(3): 498-517.
- Wu, H., Wang, L., Zhang, Z., & Gao, J. (2021). Analysis and optimization of 15-minute community life circle based on supply and demand matching: A case study of Shanghai. *PloS one*, 16(8), e0256904. <https://doi.org/10.1371/journal.pone.0256904>
- Wu, Qiuqing. (2015). The Exploration on the Dynamic Programming of Community in Megacities from the Living Circle Perspective[J]. *Shanghai Urban Planning Review* (4), 13-19.
- Xiao, Zuopeng., Chai, Yanwei., Zhang, Yan. (2014) Overseas life circle planning and practice. *Planners* (10), 89-95.
- Xuhui District "Linli Hui" Construction and Management Work Plan*. (2017, Sept 13). Shanghai Xuhui District Government. Retrieved Apr 27, 2022, from http://www.xuhui.gov.cn/H/xhxxml/zfwj_qzfbgswj/Info/Detail_21630.htm, 2017-09-13.
- Xu, Jinyan., Jiang, Liping. (2013). Diverse Cooperative Supply of Community Public Services: Mechanism and Performance. *Academia Bimestrie* (4), 107-114.

- Xu, Zengyang., Zhang, Lei. (2019). The Precision of Public Services: Innovation of Urban Community Governance Mechanism. *Journal of Central China Normal University*, 58(4), 19-27.
- Yan, Zhilan., Deng, Weizhi. (2014). Challenges and Path Innovation of Urban Community Governance in the Context of Social Construction. *The Journal of Shanghai Administration Institute* (04). 40-48.
- Yang, Tuan. (2001). *Comments on Community Services*. Beijing: Huaxia Publishing House
- Yang, Zhen., Zhao, Min. (2002). On The Provision Of The Public Facilities In Housing Areas Under The Market Economy. *City Planning Review* (5), 14-19.
- Yang, Zhou. (2016). Tax reform, fiscal decentralization, and regional economic growth: New evidence from China. *Economic Modelling*, 59, 520–528.
<https://doi.org/10.1016/j.econmod.2016.07.020>
- Yu, Yifan. (2019). From traditional residential area planning to neighborhood life circle planning. *Urban Planning Review*, 43(5):17-22. DOI:10.11819/cpr20190504a.
- Yuan, Jiadong., Sun, Zhenjie., Zhang, Na., Zhang, Zhe. (2005) Reconstruction of urban region system in China based on daily life circle. *Scientia Geographica Sinica*, 1, 17-22
- Zhang, Chun., Chai, Yanwei., Chen, Lingji. (2009). The Evolution from Danwei Community to Citizen Community: Case Study of Tongrentang in Beijing. *Urban Planning International*, 24(5), 33-36.
- Zhang, Feng. (2018). *Community Public Service Supply Mechanism and Community Governance Innovation -Taking Hangzhou Cuiyuan Street as an Example*. [Master's thesis, Zhejiang Gongshang University]
- Zhang, Laiming., Li Jianwei. (2017). The Theory Innovation, System Innovation and Practical Innovation of Social Governance in China since the 18th CPC National Congress. *Reform* 281(7), 60-69.
- Zhu, Chasong., Wang, De., Ma, Li. (2010). Urban and rural public service facilities configuration research based on the life circle: a case study in Xiantao. The annual meeting of urban planning.