# Public Place Influence: An Interpretation of the Residential Portrait of the Aging in Hong Kong

《公共场所的影响力：对香港长者居住画象的解读》

**Abstract**

Aging groups should have the right to equal access to public resources. While many studies have explored some public places and services that attract aging residents, few scholars have addressed the specific impacts of these public spaces on aging residents and migration, which are crucial for building an age-friendly society. To address this gap, this study examined the effects of three public places in Hong Kong, namely hospitals, street markets, and parks, on aging groups' residences between 2016 and 2021. The results indicate that the coexistence of these three public places leads to a 1.2% increase in the aging ratio. Additionally, for every one-meter decrease in the straight-line distance from aging residences to hospitals, street markets, and parks, the aging ratio increases by 1.3%, 0.5%, and 6.9%, respectively. Notably, when exploring the effects of public places, it was found that for each additional unit of hospitals, street markets, or parks, the aging ratio decreases by 0.3%, likely the gentrification effect. Therefore, we recommend that the Hong Kong government need pay more attention to the residential distribution of aging in urban development and consider the risk of resource competition apropriately.

**Key words**: Aging, hospital, street market, park, public space, social equity.

# Content

## 1. Introduction

Under the global trend of population aging, urban development is increasingly inclined to consider the rights of the aging population. Most aging individuals(>65 years old) are active in public places such as parks, street markets, and hospitals after retirement. The services provided by these public spaces are essential for maintaining the health, leisure, and well-being of the aging group(Enssle & Kabisch, 2020). However, influenced by various external factors, the distribution of public spaces and resources in cities is often uneven, leading to some aging individuals receiving fewer public resources, which can result in health issues or forced relocation. Additionally, research indicates that the aging population is the least willing to relocate(Wu & Rong, 2020). These circumstances underscore the importance of urban planning and construction processes to pay more attention to aging and establish clear standards to uphold social equity.

Over the past two decades, many scholars have tried addressing the issues above. Shank & Cutchin (2016) provided a comprehensive review of individual perceptions of essential places in age-friendly environments, including but not limited to parks, hospitals, and churches. Al-Husseini & Alqahtani (2020) and Kitz et al. (2022) further highlighted the significance of street markets and restaurants for the aging group. These studies have offered valuable insights for constructing public service facilities in urban planning. However, there still needs to be more literature studying the specific impacts of public spaces on aging individuals, posing a challenge for the early assessment stages of urban development.

With the emergence of the Internet of Things and the rise of digital management in recent years, some scholars have applied digital technologies to urban studies and discovered significant room for improvement in the effectiveness of public space construction and planning (Sabri & Witte, 2023), especially concerning the principles of social equity. For instance, Kang et al. (2022) utilized GIS technology in designing the placement of electric vehicle charging stations, considering economic, humanistic, and climatic factors, providing a win-win solution for governments and the public. Drawing from some research precedents (He et al., 2022), our research plan involves in-depth observation and study of the potential effects of specific public spaces on the residence and migration of the aging group from a digital geographic perspective. This evidence is crucial for urban development projects during the assessment phase.

Accordingly, we explored a question: What specific impacts of public places(hospitals, street markets, and parks) have on the residence of aging individuals? To highlight the

hierarchical nature of the results, we divided this question into three sub-problems for research (Section 4) involving the presence (1 or 0) of public places, their scale, and distance. In this context, Hong Kong provides a suitable research environment. Firstly, Hong Kong is one of the regions with the most severe population aging (Liang et al., 2023), and the government is striving to build an age-friendly society. Secondly, the Hong Kong government has open-sourced population census data and publicized detailed geographic partition data (Li et al., 2020), allowing us to examine the research question thoroughly. Therefore, this will be a comprehensive study covering the entirety of Hong Kong over a timeline.

When analyzing one of the sub-problems: Exploring the impact of the distance between aging individuals and public places on their residence. To insufficient evidence to represent the corresponding data for all aging individuals, inspired by the study by Huang et al. (2024), we chose the locations of public housing in Hong Kong as clusters for the aging group for distance calculations. This choice is based on the fact that almost all public housing in Hong Kong is in super-aged communities (with over a 20% aging ratio, Huang et al., 2024), making it highly representative.

The structure of this paper is shown as follows. After a brief introduction, it follows with a literature review in Section 2. Section 3 displays the study area, data, and selected variables. Then, it describes the research design in Section 4. Section 5 discusses the results and findings. Finally, the conclusion and recommendation is drawn in section 6.

## 2. Literature Review

This section is not a comprehensive review. Research topics related to improving aging issues and building an age-friendly society can be categorized into two main areas. Studies representing residential preferences are, on the one hand, typically based on collecting individual perceptions. Conversely, cross-studies involving new technologies (information) and policy intentions aim to view cities quantitatively to alleviate aging challenges. Since our research data aligns more with the latter, this section will review research that utilizes information technology, digital analysis methods to address aging issues and highlighting existing problems.

When people realize that the Internet of Things (IoT), assistive devices, robotics, and artificial intelligence (AI) can provide assistance for aging groups to live independently and healthily, the era of interdisciplinary research has arrived (Wang et al., 2019). Neves & Vetere (2019) used digital assistive technology to design routes that allow aging individuals in remote areas to reach hospitals smoothly. To establish more efficient

healthcare models, the team led by Jiang et al. (2021) developed an online medical consultation platform where aging people in transportation-challenged regions can receive effective medical advice via video conferences. Additionally, with the proliferation of mobile devices and other communication tools, more technology products suitable for aging groups are gradually emerging, such as smart glucose meters (Rghioui et al., 2020), hearing aids (Sanders et al., 2021), and smart homes (Li et al., 2021). These Gerontechnology(乐龄) devices strive to bridge the "digital divide" between older and younger generations and enhance the social engagement of aging people.

In addition to the contribution of digital technology to assistive devices, its contribution to building a sustainable, age-friendly society is also significant at the level of urban planning. Unlike earlier urban analyses based on qualitative research, with the aid of big data platforms (Atitallah et al., 2020), we can have a more holistic assessment of the city's state to benefit a broader range of stakeholders. For example, in the construction of a new coastal district in the north of Wan Chai, Hong Kong, Jia (2023) used GIS-AI technology to create a barrier-free pedestrian road, which benefits aging people and makes a considerable revenue margin for motorized vehicles to maximize their efficiency, which is also a future trend for building age-friendly cities.

To recap, digital technologies are in an upward trend in building age-friendly societies within cities, as proposed in this research question. It is essential to identify which public places may impact the living conditions of the aging population and quantify these impacts using digital technologies. This will provide valuable insights for urban planning to maintain social equity during the early assessment stages.

## 3. Data Collection

### 3.1. Study Area

Hong Kong(**Fig. 1**) is situated in the southern region of China. The Planning Department has subdivided each district into District Council Constituency Areas (DCCA) for statistical analysis. In line with the delineation criteria, there were 431 DCCAs in 2016 and 452 DCCAs in 2021. The data associated with each DCCA encompasses geographic information regarding the district's Points of Interest (POI) and demographic statistics of the inhabitants. As of the writing of this article (11/19/2024), Hong Kong’s aging people ratio has risen to 21%, and has gradually entered the category of super-aged cities (Kim, 2024).

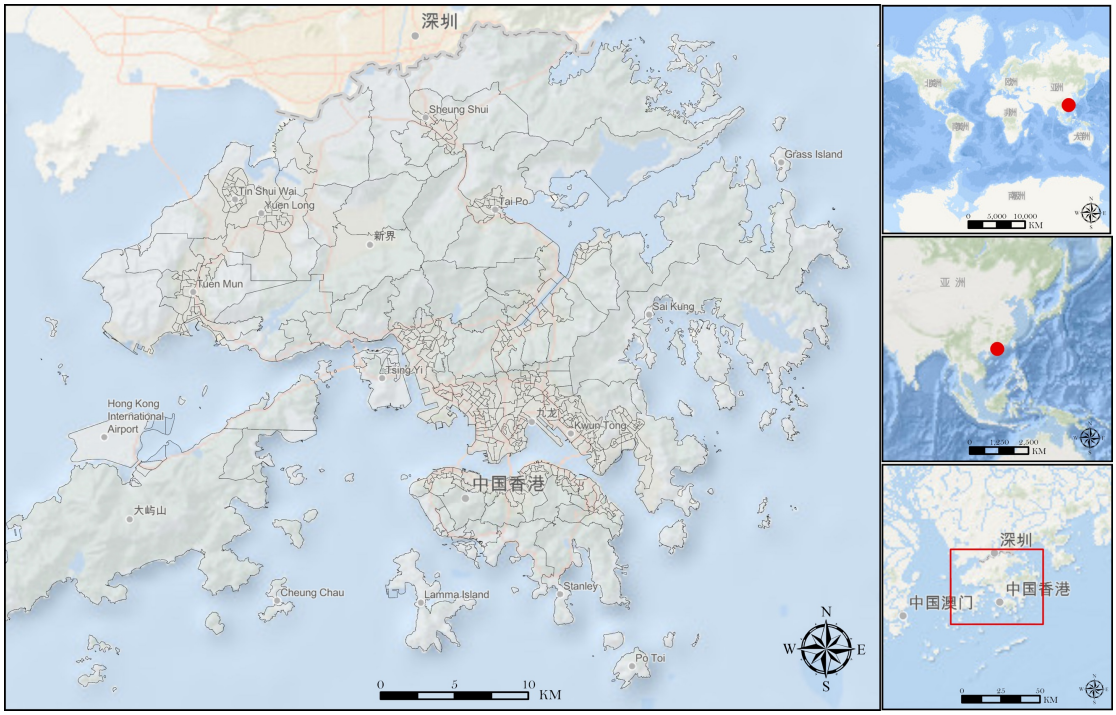


**Fig.1:** Hong Kong

### 3.2. Datasets

Our research data comes from different sources, namely Census and Statistics Department of Hong Kong(CSD), Lands Department(LD), Hospital Authority(HA), Food and Environmental Hygiene Department(FEHD), Leisure and Cultural Services Department(LCSD). At the same time, geographic data comes from open street map. Data mining, collation and visualization are all performed by Python and ArcGIS Pro.

The first set of data is about Hong Kong's population statistics. The data is sourced from the Census and Statistics Department of Hong Kong (CSD, 2024). We utilized the District Council Constituency Areas (DCCAs), which include, but are not limited to, showcasing population characteristics, households, languages, and community summaries within each district. This dataset helps us identify the aging population ratios at the DCCA level for the years 2016 and 2021. Descriptive statistical results are documented in **Table 1** and visualized in **Fig. 2**.

The second set of data is about public places, descriptive statistical in **Table 1** and visualized in **Fig. 4**. Based on our review results, we selected three places that are most attractive for elderly residents for research purposes, namely hospitals, street markets, and parks. The data sources are the Hospital Authority of Hong Kong, the Food and Environmental Hygiene Department, and the Leisure and Cultural Services Department. These sources provide detailed open-source data about these locations, including their geographical positions, types, and the years of establishment of their facilities. It is

worth mentioning that the hospitals in Hong Kong operate under a multi-tiered departmental management system. Therefore, the hospital data set is a combination of five different types of clinics managed under the Hospital Authority, namely the Hospital Authority Specialist Outpatient Clinic List, Medical Social Services Units, Hospital Authority General Outpatient Clinic List, General Out-Patient Clinics for Community Vaccination Service, and the List of Civil Service Chinese Medicine Clinics.

The third set of data is about public housing, it visualized in **Fig. 3**. The data is sourced from the published building data of the Hong Kong Buildings Department. Through the introduction of the open section, our research will use the distance between public housing and public places as a proxy for the distance between aging individuals and public places. According to standards, all public housing communities in Hong Kong are considered super-aged communities (Huang et al., 2024). Examining the proximity of public housing to public places is persuasive for understanding the impact of distance on residential areas and migration. This data is documented in **Table 1**.

The final set of data shows the Socio-demographic-economic indicators in the regions, we used it as a control variable, it recording in **Table 2**. As our research involves the principles of regression analysis (within the DID model), considering the influence of time and demographic indicators on the results, we extracted population density, household population, median household income, proportion of professionals, educational attainment, and labor force from the first dataset at the DCCA level within each district. The selection of these control variables is based on the study by Liang et al. (2022), a representative literature in urban studies in Hong Kong. Therefore, we have used it as a standard reference to ensure the accuracy of our research findings.

## Table 1

| Variables | Description | Unit | Mean | Standard deviation | N |
|---|---|---|---|---|---|
| Aging Ratio | Percentage of aging people in each DCCA division | Percentage | 0.180724 | 0.054632 | 883 |
| Hospital | Five different types of clinics under the Hong Kong Hospital Authority | Points | N/A | N/A | 220 |
| Street Markets(SMs) | Distribution of all street markets | Points | N/A | N/A | 102 |

| | | | | | |
|---|---|---|---|---|---|
| Park | Distribution of parks | Points | N/A | N/A | 113 |
| Public Housing | Distribution of public housing in Hong Kong | Polygons | N/A | N/A | 5757 |
| Pre_Hosp | Presence of hospitals in the sub-districts | 1 or 0 | 0.165123 | 0.336980 | 883 |
| Pre_SMs | Presence of street markets in the sub-districts | 1 or 0 | 0.187995 | 0.390930 | 883 |
| Pre_Parks | Presence of parks in the sub-districts | 1 or 0 | 0.185730 | 0.389109 | 883 |
| C_Hosp | Number of hospitals per district | Counts | 0.246886 | 0.600622 | 883 |
| C_SMs | Number of street markets per district | Counts | 0.228765 | 0.530038 | 883 |
| C_Parks | Number of parks per district | Counts | 0.345764 | 0.213241 | 883 |
| Time | Whether the observed data is in 2021(Yes= 1, No= 0) | 1 or 0 | 0.518913 | 0.500141 | 883 |

**Note**: Summary of variables descriptive statistics. The number of district council constituency areas(DCCAs) in 2016 and 2021 are 431 and 452.

## Table 2

| Variables | Description | Unit | Mean | Standard deviation | N |
|---|---|---|---|---|---|
| Population density(C) | Density of population in the DCCA | People/$km^2$ | 72,190.300 | 59,620.000 | 883 |
| Household size(C) | Median household size in the DCCA | Counts | 2.900 | 0.330 | 883 |
| Household income(C) | Median household-based income in the DCCA | HKD | 24,888.700 | 15,111.200 | 883 |
| Professional(C) | Percentage of population with profession as managers and professionals the DCCA | Percentage | 0.033 | 0.022 | 883 |
| Education(C) | Percentage of the population that is 25 years older held at least | Percentage | 0.166 | 0.100 | 883 |

| | | | | | |
|---|---|---|---|---|---|
| | a bachelor's degree or above in the DCCA | | | | |
| Labor(C) | Ditribution ratio of low-income households in the DCCA | Percentage | 0.052 | 0.040 | 883 |

**Note**: (C) Control variables. DCCAs represent District Council Constituency Areas

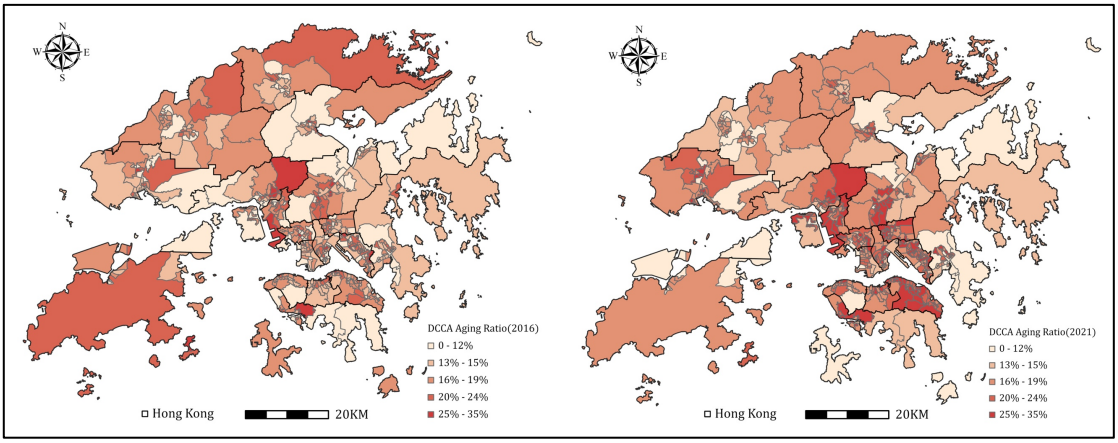


**Fig.2:** Proportion of aging population by sub-area at DCCA level (2016/2021)

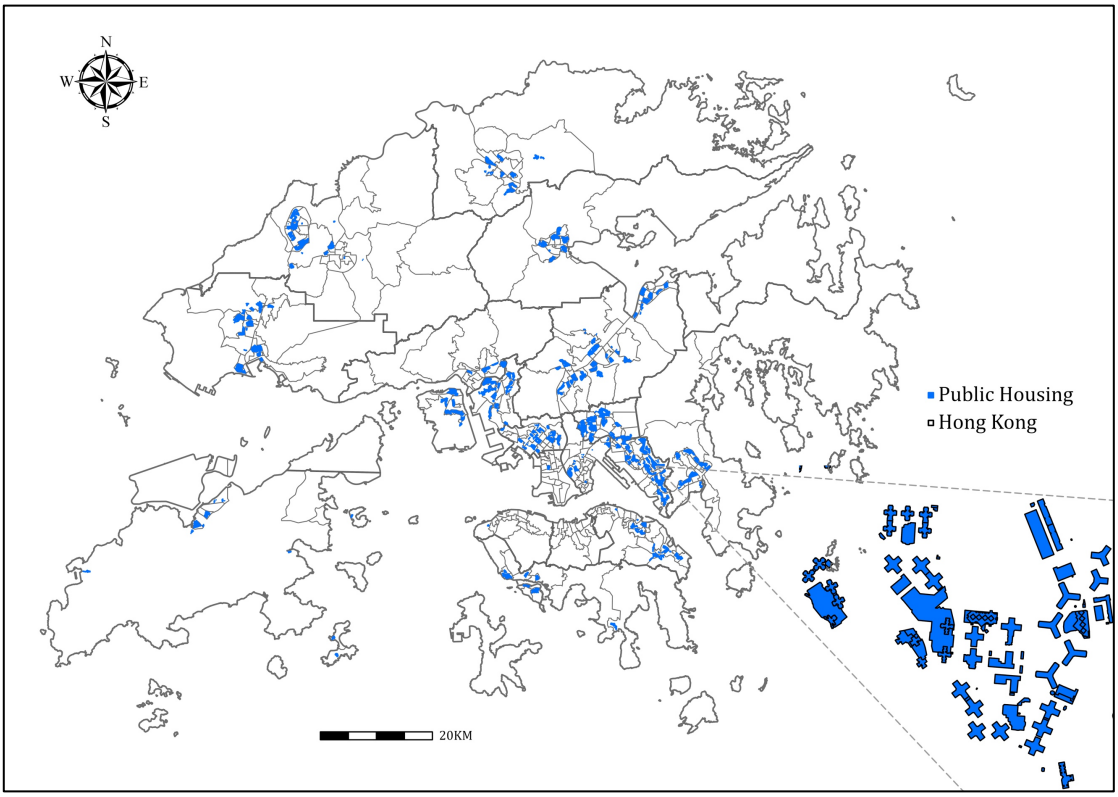


**Fig.3:** Distribution of public housing in Hong Kong

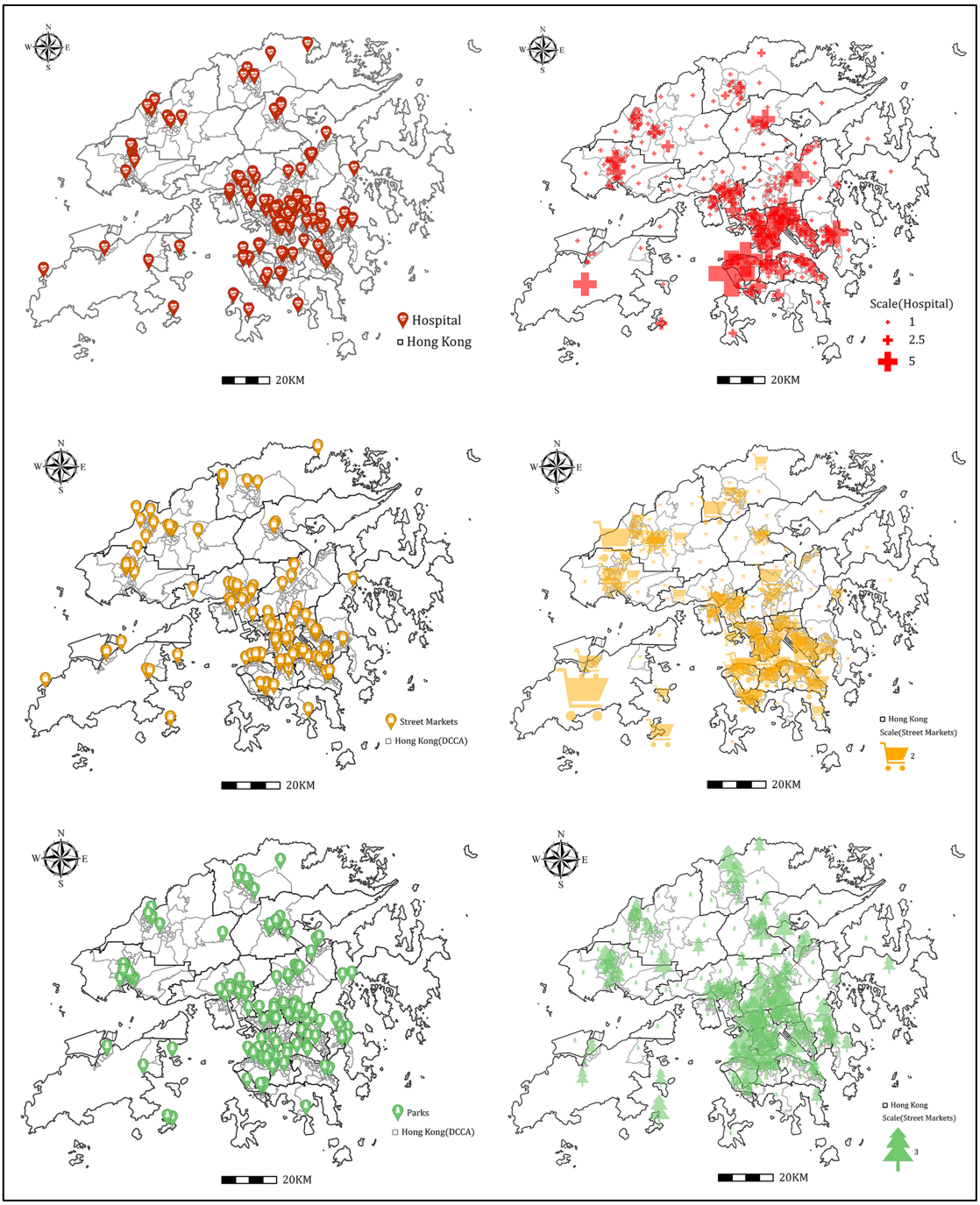


**Fig.4:** Distribution/Scale of hospitals, street markets and parks in Hong Kong

## 4. Research Design

According to the research question in open part: What specific impacts of public places(hospitals, street markets, and parks) have on the residence of aging individuals? To facilitate the observation of results, we will analyze the research question by dividing it into three sub-questions:(1) The relationship between the presence of hospitals, street markets, or parks within the area and the proportion of the aging population. (2) The relationship between the average distance from hospitals, street markets, or parks to public housing within the area and the proportion of the aging population. (3) The relationship between the number of hospitals, street markets, or parks within the area and the proportion of the aging population.

The research needs led us to use the Difference in Differences (DID) Model to address this question. In the literature in the field of urban studies, the Difference in Difference (DID) Model is commonly used to account for the impact of events (Schrotter & Hürzeler, 2020), especially in the case of events that have contrasts in the time series. Meanwhile, inspired by some literature on socio-economic applied analyses (Liang et al., 2022), the basic formula of the DID Model in this study is as follows:

$$W_{it} = \sigma_0 + \sigma_1 * Z_{it} + \sigma_2 * Treat_{it} + \sigma_3 * Time + \sigma_4 * Treat * Time + \varepsilon_{it} \quad (1)$$

Where the $i$ represents individuals, $t$ representes time, $Treat$ is a grouping dummy variable. If individual $i$ belongs to the experimental group, $Treat = 1$, otherwise $Treat = 0$. $Time$ is a staging dummy variable with time $t$ after the event, $Time = 1$, otherwise, $Time = 0$. $Treat$ and $Time$ are interaction terms. In this experiment, the data for 2021 is labelled $Time = 1$, the data for 2016 is labelled $Time = 0$, and the events are presences, distance and scale of public places.

### 4.1. Presence(1 or 0) – sub-question(1)

According to the basic equation of the DID model above, in this section we take whether public place exists or not as an event (1 or 0), whose formula is:

$$W_{it} = a_0 + a_1 * Z_{it} + a_2 * Treat_{it} + a_3 * Time + a_4 * Treat * Time + k_{it} \quad (2)$$

Where, $W_{it}$ indicated that aging population ratio between 2016 or 2021 in Hong Kong at time $t$ under the level of DCCAs. $Treat$ refers to the level of DCCAs , if there is a public place(hospitals, street markets or parks) presence, it is regarded as 1, if not, it

is marked as 0. In addition, $Z_{it}$ represents a vector of socio-economic-demographic information, for instance Household size, educational attainment, proportion of the working population and population density, as presented in **Table 2**. Time refers to the time period, $k_{it}$ represents the error term.

### 4.2. Distance – sub-question(2)

Prior to the DID analysis, we calculated the average distance from public housing to hospitals, street markets or parks in each of the sub-areas in the DCCAs, denoted as $Distance$. Following the research demand, we rewrite it based on the fundamental equation of the Difference in Differences(DID):

$$W_{it} = d_0 + d_1 * Z_{it} + d_2 * Distance + d_3 * Time + d_4 * Distance * Time + m_{it} \quad (3)$$

The content of this equation is similar to (1) in that $W_{it}$ and $Z_{it}$ are the same, except that, $Distance$ represents the distance between aging and public places(average). $d_i$ is the estimated coefficient, i = {0,1,2,3,4}.

### 4.3. Scale – sub-question(3)

To explore whether the number of public places per partition within DCCAs has an effect on the aging population ratio, we rewrote the DID formula as follows:

$$W_{it} = b_0 + b_1 * Z_{it} + b_2 * Scale + b_3 * Time + b_4 * Scale * Time + \gamma_{it} \quad (4)$$

The content of this equation is similar to (1) in that $W_{it}$ and $Z_{it}$ are the same, except that, $Scale$ represents the quantity of hospitals, street markets or parks. $b_i$ is the estimated coefficient, i = {0,1,2,3,4}, $\gamma_{it}$ represents the error term.

It is worth noting that since Hong Kong's, from 2016 to 2021, the development of public spaces in the city tends to stabilise under normal provision of public services despite the impact of a special event (COVID19), no parallel trend test is conducted prior to the experiment.

## 5. Results and Discussion

The part of analysis were all performed by the STATA MP18. The results are presented in **Tables 3**, **4** and **5**. The results of the first sub-question analysis are included in **Table 3** and section 5.1, the results of the second sub-question are shown in **Table 4** and section 5.2, and finally, the results of the third sub-question are publicised and discussed in **Table 5** and section 5.3.

Before presenting and discussing the analytical results, let's first observe the features shown in **Fig. 2**. The left graph represents the aging population ratio of each district under the DCCA level in Hong Kong in 2016, while the right graph represents the aging population ratio of each district under the DCCA level in 2021. After aligning the scale standards, we observed that the darker areas have notably converged towards the central areas of Hong Kong from 2016 to 2021, particularly around the districts of Kowloon City and Yau Tsim Mong. This trend closely mirrors the distribution of the three public places shown in **Fig. 4**. Upon initial observation. It validates the strong attractiveness of public places for the residential choices of the aging group despite being one of the groups least inclined to relocate.

### 5.1.Presence of public places(1 or 0)

The analysis results of the first sub-question are presented in **Table 3**. Upon observing the P values, we found that the presence or absence of the three types of public places does not show a statistically significant association with the aging population ratio. This is an exciting finding, as most studies on perceived living environments suggest that public places are the most attractive destinations for those not spending time on work-related activities (Ferreira et al., 2021). However, our results indicate they are insignificant when these three places are individually considered for their presence or absence. It could be due to the impact of the COVID-19 pandemic in 2019. Although Hong Kong did not implement strict lockdown measures, public places such as parks, hospitals, street markets, and public activity hubs faced increased virus transmission risks. Coupled with the weaker immune systems of the aging group, this diminished the attractiveness of such public places. These health risks significantly affected the efficacy of public services for the aging group, even prompting avoidance thoughts (Li & Liu, 2022).

Interestingly, when we combined the three types of places, the results were significant, with a P value of 0.041. This indicates that public places in the area still influence the aging population's residence. Upon observing the coefficients, it showed that for each additional unit of a public place, the aging population ratio increases by 1.12%.

Combining the above discussion, we find that relying solely on hospitals, parks, and street markets does not necessarily confirm them as the "most" attractive public places. In the future, evidence needs to be extracted from different perspectives, providing a new angle for studies in environmental perceptions.

**Table 3**

| Variable | Description | P value | Std. err. | Coefficient |
|---|---|---|---|---|
| Pre_SMs | Existence of street markets in the region (1 or 0) | 0.890 | 0.038480 | 0.051503 |
| Pre_Parks | Existence of parks in the region (1 or 0) | 0.684 | 0.027632 | 0.015286 |
| Pre_Hosp | Existence of hospitals in the region (1 or 0) | 0.342 | 0.094641 | 0.292876 |
| Pre_Total | Existence of street markets, parks and hospitals in the region (1 or 0) | 0.041* | 0.026944 | 0.012738 |

***Note:*** *p<0.05, **p<0.01, ***p<0.001. Statistical Results(Analysis 1- presence).

### 5.2.Distance between aging and public places

This section presents the results of sub-question (2), which are included in **Table 4**. Observing the table, we find that the average distance from the three public places to aging communities represented by public housing has a statistically significant association with the aging population ratio. Firstly, regarding the distance from street markets, the result shows a p-value of 0.03, with a coefficient value of -0.0052. This suggests that for every meter decrease in the distance between aging communities and street markets, the aging population ratio increases by 0.5%. Furthermore, looking at the distance from parks (Dis_Parks) results, the p-value is 0, and the coefficient value is -0.069. This indicates that the proximity of parks to aging clusters is desirable for aging individuals. The aging population ratio increases by 6.9% for every meter reduction in distance. Lastly, examining the results in **Table 4**, we find that the average distance from hospitals to aging communities also shows a statistically significant association with the construction of the aging residential environment. The p-value is 0.038, and the coefficient value is -0.013. This suggests that for every meter decrease in the straight-line distance between hospitals and age groups, the aging population ratio increases by 1.3%.

Health factors influence many aging individuals with limited mobility, making them prefer short-distance travel. This fact confirms why the research results in this segment are all significant. It provides a clear direction for future urban development, suggesting that focusing more on constructing facilities that offer public services in proximity to aging communities can enhance the quality of life for the aging group. This outcome is also mentioned in various literature sources(Bonaccorsi et al., 2020; Mouratidis, 2021; Van Hoof et al., 2021).

**Table 4**

| Variable | Description | P value | Std. err. | Coefficient |
|---|---|---|---|---|
| Dis_SMs | Distance from street markets to public housings in the region (space) | 0.030* | 0.024006 | -0.005210 |
| Dis_Parks | Distance from parks to public housings in the region (space) | 0.000*** | 0.016500 | -0.069324 |
| Dis_Hosp | Distance from hospital to public housings in the region (space) | 0.038* | 0.003459 | -0.013121 |

***Note:*** *p<0.05, **p<0.01, ***p<0.001. Statistical Results(Analysis 2 - distance).

### 5.3.Scale of public places

The analysis results of the third sub-question are documented in **Table 5**. Upon reviewing the results, we observe that they are remarkably similar to the findings regarding the existence of public places from **Table 3**. The quantities of the three individual places (hospitals, parks, or street markets) within the DCCA level zones do not significantly affect the aging population ratio. However, when these three places are combined, an increase in their quantity statistically significantly impacts the aging population ratio. The p-value is 0.03, and the coefficient value is 0.0036. This indicates that for each unit increase in the number of public places in the region, the aging population ratio grows by 0.3%.

It is worth noting that contrary to our initial speculation, we have discovered a negative correlation between the number of public places and the aging population ratio (all coefficients are negative). This indicates that the population of aging individuals

decreases as the number of public places in an area increases—areas that provide public services. We suspect that this phenomenon could be attributed to the effects of gentrification, where areas inhabited initially by low-income or working-class residents undergo urban renewal, redevelopment, or revitalization, leading to increased property prices, improved community environments, the emergence of new commercial facilities, and cultural activities that attract more middle to high-income individuals to move in. Consequently, the original residents, including aging individuals, may find it increasingly difficult to afford living costs and are forced to relocate. This hypothesis explains well why the increase in public places does not increase but rather a decrease in the aging population. In urban planning, this serves as compelling evidence that prompts decision-makers to pay more attention to the equitable distribution of public resources and its impact.

**Table 5**

| Variable | Description | P value | Std. err. | Coefficient |
|---|---|---|---|---|
| C_SMs | Scale of street markets present in the region | 0.757 | 0.030325 | -0.009390 |
| C_Parks | Scale of parks present in the region | 0.390 | 0.236821 | -0.020358 |
| C_Hosp | Scale of hospitals present in the region | 0.214 | 0.027681 | -0.004527 |
| C_Total | Scale of street markets, parks and hospitals present in the region | 0.025* | 0.030708 | -0.003666 |

***Note:*** *p<0.05, **p<0.01, ***p<0.001. Statistical Results(Analysis 3 - scale).

To brief, the presence, distance, and scale of public places do have an impact on the aging population ratio, but the specific effects vary depending on the type of public place. Undoubtedly, all of it represent crucial factors to consider in constructing an age-friendly society.

# 6. Conclusion

## 6.1. Findings

There is an urgent need to build an age-friendly society. This study explores and solves a problem: What specific impacts of public places(hospitals, street markets, and parks) have on the residence of aging individuals? Based on the results of the study, we found that the coexistence of these three public places leads to a 1.2% increase in the aging ratio. Additionally, for every one-meter decrease in the straight-line distance from aging residences to hospitals, street markets, and parks, the aging ratio increases by 1.3%, 0.5%, and 6.9%, respectively. Notably, when exploring the effects of public places, it was found that for each additional unit of hospitals, street markets, or parks, the aging ratio decreases by 0.3%, likely the gentrification effect. Therefore, we recommend that the Hong Kong government pay more attention to the residential distribution of aging in urban development and appropriately consider the risk of resource competition.

## 6.2. Policy implication

At first, comprehensive Planning of Public Places. When planning aging-friendly living environments, it is essential to consider the layout and quantity of different types of public places comprehensively. This ensures that the distribution of public areas positively impacts the quality of life for aging individuals and community integration.

Then, balanced Development of Public Places. When increasing the number of public places, it is crucial to consider the quantity and distribution of aging populations promptly. Avoid concentrating public places excessively in a particular area or type to prevent elite groups' intervention, leading to the forced relocation of aging individuals.

Moreover, enhanced Public Transportation and Accessible Facilities. Strengthen the development of public transportation and conveniently accessible facilities within the region to improve the accessibility of aging individuals to public places. Our results indicate that the closer aging individuals reside in public areas, the higher their willingness to live there.

Finally, regular Evaluation of Public Places Impact. At any stage of planning and implementation, it is essential to regularly assess the impact of public places on the living conditions of aging individuals. Please adjust policy directions quickly to ensure the construction of an age-friendly society.

## 6.3. Limitations and future study

Indeed, our study has some limitations. Firstly, between our study periods (2016-2021),

Hong Kong experienced several major social events, such as the 2019 social movement and the 2020 COVID-19 pandemic. These events likely influenced our research results. However, it is noteworthy that the direct impact of these events was to confine people indoors, particularly reducing the desire of the aging group to relocate and shifting their focus to other matters. In this context, we still obtained many meaningful, significant results, indicating that in urban development, public places are essential indicators for considering social equity and constructing an age-friendly society.

**Total Words: 5000**

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