

Research on the Ageing of Smart Cities in China

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Abstract: This paper is based on the Seventh National Population Census Bulletin and the author's two years of experience working in a charitable organization in Shanghai, China. This paper aims to describe three trends- urbanization, digitalization of urban areas, and aging population-in China, and the problems the society, especially the elderly, is facing when these three inevitable tendencies intersect. The PEST model is used to analyze and describe the problem above. In the PEST model in this paper, different solutions were listed. In the PEST model, the author puts forward corresponding policy suggestions from the perspectives of politics (public administration), economy (fiscal and consumption problems of the elderly in the digital city), society (the life of the elderly under the epidemic policy), and technology (the use of digital products by the elderly). In terms of administration, a certain number of staff should be kept helping the elderly in governmental offices, or special passes should be opened for the elderly. Economically, protect the labor rights of the elderly and participate in their capable work. Keep offline consumption scenarios going and carry out aging adaptation. From a social perspective, it will facilitate the lives of the elderly in the epidemic era and reduce the nucleic acid code information procedure. Increase the mobile phone use education for the elderly from the perspective of science and technology.

Keywords: urbanization, digital city, aging population, PEST model

1. Introduction

The Seventh National Population Census Bulletin, released in 2021, confirmed the imminent problem of social aging that has been widely discussed in Chinese society for a long time. Rural areas in Northeast China, as well as cities represented by Shanghai, have entered a stage of deep aging. The difference between the two is that Northeast China is a net population outflow area, while Shanghai is a population inflow area. With a large number of young people moving into Shanghai, the city is still in a state of aging. The rapid urbanization process in China also makes the aging of cities a serious trend. While enjoying more efficient public services than those in rural areas, the urban elderly also faces many problems due to the transformation of digital cities. Through this research, the author hopes to provide problems encountered by urban elderly from various perspectives, as well as possible improvement paths.

2. Background

2.1. Tendency of Aging Population in China

According to the Seventh National Population Census Bulletin released on May 11, 2021, the population aged 60 and above accounts for 18.70% of the total population of China (mainland), of which the population aged 65 and above accounts for 13.5% of the total population. In terms of trends, the proportion of the population aged 60 and above increased by 5.44% compared with 2010 [1]. With the improvement of Chinese mainland economic and medical conditions, as well as the decline in the birth rate, China has entered a moderately aging society and may be on its way to becoming a deeply aging society.

2.2. Tendency of Urbanization in China

China's urbanization rate increased from 49.68% in 2010 to 63.89%. More than 200 million people have become urban (in the hukou sense). Mainland Chinese applies the household-registration system (hukou system) distinguish between rural or city residential attributes. Rural residents may become urban residents because their villages are administratively classified as towns, without changing their occupation and living condition. From the data, the super-large cities represented by Shanghai and Beijing are also facing the problem of urban aging. Taking Shanghai as an example, as a net inflow of population, the elderly population (60 and above) reached 23.38%, which is one of the major cities with the highest degree of aging in mainland China.

2.3. Urban Aging Population

Although the aging of China's rural areas is also an important problem, such as the fact that the population over 60 years old in Heilongjiang Province (an agricultural province in northeast China) is over 23.22%, from the perspective of rapid urbanization, the rural elderly population is transformed into the urban elderly population, even only from a statistical perspective. Although there is a lag in the urbanization of the elderly population, the lag phenomenon will weaken after the urbanization rate exceeds 50% [2]. it is inevitable that the urban elderly population will exceed the rural elderly population. Cities and towns are more suitable for discussion from its residential density, the penetration rate of public services and the financial situation of cities and towns.

2.4. Tendency of Urban Digitalization in China

The third aspect: Chinese mainland investment in smart cities. Since August 2014, the "Inter-ministerial Coordination Working Group on Promoting the Healthy Development of Smart Cities" has been established at the national level to promote the intelligence of cities by the national government [3]. The investment in intelligence in Chinese mainland cities is also increasing year by year. From travel and payment to administrative and public health during the epidemic, China's smart city construction based on mobile phones and cloud computing is no longer calculated by the software user, but the inevitable use of everyone who participates in urban life.

3. Methodology

The PEST analysis method is a research method that focuses on solving real decision-making problems and is a methodology for environmental analysis of external factors from the perspective of organizational strategy from the four aspects of political environment, economic environment, social environment, and technology environment (research on digital life integration of the elderly

based on the PEST analysis method) [4]. This paper will use the PEST model to make a general statement of the plight of the elderly in smart cities and possible solutions.

3.1. Political Factors

From a public administration point of view, paperless offices and the digital upgrade of government systems are important components of smart cities. In recent years, Zhejiang Province has introduced "only run once", which means that citizens go to the government's offline counter or office at most once when handling business, and more processes are carried out through data and the government's online systems. These efforts and reformation have improved administrative efficiency and institutional efficiency, expanded public services, and reduced queues and waste of resources. On the other hand, the complexity of the online verification process and the illiteracy and non-Mandarin speakers among the elderly population make things even more confusing. Especially in hospitals and other places where the elderly is frequently used, the intelligent standard official wording system has become a burden in the medical process for the elderly.

After the government improves administrative efficiency through digitalization, more staff can be deployed to serve the elderly and other vulnerable groups who go offline to do business, and some paper-based administrative processes can be reserved for the elderly in the "paperless" administrative procedure. This can indirectly make digital public administration better serve the people who cannot operate digital system [5]. Second, the government can hire some middle-aged and early elder people living in urban communities to participate in public administration services and serve other elderly people, which can help the elderly handle business, and encourage "active aging", so that the elderly population can have better social participation.

3.2. Economic Factors

3.2.1. Fiscal Point

From a national fiscal point of view, aging will have a very serious impact on the national fiscal system and the medical insurance, pension system. With the increase in the retired population and the decrease in the working population, there may be a relatively large deficit in the social security fund [6]. With the current retirement age regulations (60 for men and 50 for women), delaying the retirement age and encouraging the re-employment of the elderly will be a necessary solution [7]. In urban employment environments, it is common to employ middle-aged and elderly people in community affairs and non-manual service industries, considering their experience and physical condition. However, the retirement status of the elderly causes them to only be able to sign a "contract of service" instead of "labor contracts", which causes the elderly employees are not protected under labor law [8]. Improving the legal protection of elderly workers can effectively promote the re-entry of middle-aged and elderly people into the labor market and reduce fiscal pressure.

3.2.2. The Perspective of City Life

From the point of view of city life, the convenience and efficiency of online shopping and online payment make Chinese mainland payment habits shift directly from cash payment to mobile payment, and bypass bank card payment habits. A large proportion of older people are still accustomed to using cash for offline purchases. The government emphasizes the legal status of paper money use: The Chinese government's document emphasizing that the renminbi must not be refused largely guarantees the payment process for people who use cash. Retaining traditional markets and transforming them to be age-appropriate can not only meet the needs of the economic life of the elderly, but also meet the urban social needs of the elderly.

3.3. Social Factors

Under the influence of the epidemic, public health has become the most common field used by smart cities in mainland cities. In mainland cities, people need to periodically do nucleic acid, and use smart phones (with the function of scanning codes and running medium and large software) to present nucleic acid results (nucleic acid codes) to enter most public spaces. In the early days of the epidemic, there was a phenomenon in the mainland: because the elderly could not use smart phones, they could not do nucleic acid, and they could not take public transportation. This is just a life scene, in fact, because of the epidemic, the elderly who passively learn smartphones still have many life difficulties. In some public places, the government has solved this problem to some extent through high-tech all-in-one machines (electronic sentinels) that can scan nucleic acid codes and physical ID cards. But in most public places, manual scanning is still required, which requires a more comprehensive solution, under the current strict epidemic policy.

3.4. Technological Factors

All the above issues and solutions basically stem from the unfamiliarity of the urban elderly population with technology. On the one hand, the government has allowed technology companies with infrastructure attributes in citizens' lives, such as payment companies and telecommunications companies, to develop versions that are more suitable for people with disabilities. On the other hand, actively mentoring and educating the elderly through the elderly community and the university would allow the elderly to familiarize themselves with the use of smart devices and related software, and actively participate only in urban life [9].

4. Conclusion

In the intersection of aging population and urbanization, oversimplified, digitalized cities may cause obstacles and troubles in urban life for the elderly, while smart cities suitable for aging can not only help the elderly have a better life in urban areas, but also reduce the burden on the younger generation. The aging-friendly smart city model improves not only the quality of life of urban elderly people, but also the living comfort of other vulnerable groups (such as the disabled) in cities and rural elderly people.

There is a lack of research on the living environment of the elderly in the epidemic era in mainland China, and a lack of comparison of overseas experience on the elderly's living condition and policies in urban areas, especially urban aging in East Asian Confucian cultural circles. The direction of future research is to analyze and compare the different ways of aging of different social classes and the employment of the elderly from the academic perspective of Marxism.

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