

REVIEW ARTICLE

Promoting the development of silver economy with a view to well-being: A review of the Guangdong-Hong Kong-Macao Greater Bay Area

Wei Zhu¹, Iat Meng Chan^{2,*}¹School of Medicine and Health, Sichuan City Vocational College, Chengdu 610101, Sichuan Province, China²Faculty of Business, City University of Macau, Macao 999078, China**ABSTRACT**

The aging of the world's population is a global problem, and the demand for products and services to safeguard the health of the elderly is growing, which has a significant impact on the development of the silver economy. This paper takes the Greater Bay Area (GBA) as the research object, reviews the research results of predecessors, analyzes the secondary data, and focuses on analyzing the development of aging services, policy coordination and innovation in the process of entrepreneurship, and believes that the GBA has made breakthroughs in the training of talents, the innovation of policy, and the construction of industrial ecosystem, but there are still some problems, such as the uneven distribution of infrastructure, the weak purchasing power of the elderly, and the lack of labor force, which restrict the continuous and fair provision of services. In this paper, the theory of happiness science is introduced to build a framework for promoting the development of the silver economy, to enhance the availability and quality of services, to promote the sustainable development of the elderly, to improve their health, and to enhance their social participation ability, so that the GBA can become a testing ground for the development of the silver economy, and to provide valuable experience for the development of high-quality, low-cost services in different administrative areas.

Keywords: silver economy, collaborative innovation, policy coordination, ageing services, well-being, Guangdong-Hong Kong-Macao Greater Bay Area

INTRODUCTION

The aging of the population has triggered a demographic transformation, and the demand for elderly care services has changed, which has promoted the development of the silver economy, and the government has also paid more attention to the development of the silver economy, which can provide products and services for the elderly and improve institutional arrangements. In the process of formulating policies and carrying out research, the Pearl River Delta region is composed of the cities of Guangdong Province and the two special


administrative regions of Hong Kong and Macao. In this region, there are many governance systems and abundant innovative resources, which can play an important role in the development of elderly services (Cai & Dong, 2024).

Looking back on the development of the Greater Bay Area (GBA) in 2023, the area of the region is about 56,000 square kilometers, with a population of about 86 million, an economic output of more than 14 trillion yuan, and an economic output accounting for 11% of the country's GDP. In the same period, the permanent

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population increased by 440,000, which is conducive to the expansion of the supply pool and the improvement of elderly care services. The Blue Book of 2024 pointed out that the per capita GDP of the whole region reached 162,000 yuan, the per capita GDP of the nine cities on the mainland was 140,000 yuan, and the per capita GDP of Hong Kong and Macao was 484,000 yuan and 359,000 yuan respectively, which is significantly higher than that of the mainland (Figure 1). The social and economic differences in the region mean that the purchasing power of the people is uneven, which is not conducive to the formulation of inclusive service plans and the expansion of services across regions (Cao *et al.*, 2019).

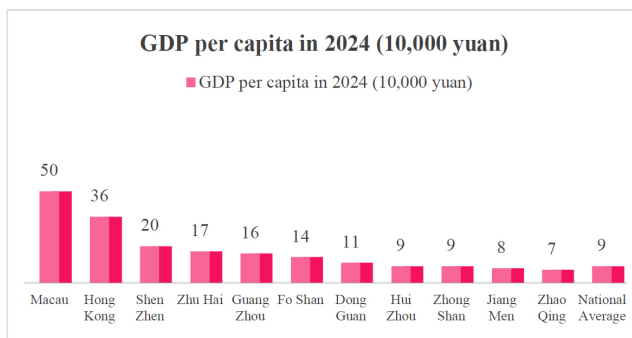


Figure 1. Shows the GDP per capita of the three regions of Hong Kong, Macao and Guangdong, in units of 10,000 yuan. GDP, gross domestic product.

In this case, the three regions of Guangdong, Hong Kong and Macao have cooperated in the fields of health care, technology and so on, and the institutional coordination has been promoted, which is conducive to the alignment of policies and the creation of new business models, and the innovation activities in the silver economy are more and more frequent. How can we improve the continuity of services, eliminate the access barriers and promote collaborative innovation? This is a problem that needs to be solved urgently (Cai & Dong, 2024).

The aging of the population is a serious problem in the development of the GBA, and the income level of residents is relatively low. By the end of 2024, the proportion of the elderly population in China reached 15.6%. According to the prediction model, by 2035, the number of people aged 60 and above will reach 400 million, accounting for 30% of the total population (Cao *et al.*, 2019).

Generally speaking, there is a big difference between the aging pressure of the population in the GBA and the service demand in the urban area. There is also a big difference in the economic resources of the region. In this case, we should solve the policy problem, coordinate

the development of the region, and provide services for the silver economy on a large scale, which is related to infrastructure construction, health care and so on (Chen *et al.*, 2022).

GLOBAL TRENDS AND OPPORTUNITIES FOR THE DEVELOPMENT OF THE SILVER ECONOMY

Global ageing trends and economic development paradigm shift

The aging of the population is an inevitable trend in the 21st century, which will have a significant impact on the world's economic development. The aging of the population is reflected in the fact that the proportion of the elderly in the total population of a country or region is increasing, which is related to the prolongation of life expectancy and the decline of birth rate. In 1956, the United Nations issued the "Population Aging and Its Impact on Socio-Economics", which pointed out that when the proportion of the population over 65 years old in a country or region reaches 7%, it will enter the aging society. When the proportion of the elderly reaches 14%, it will enter the advanced aging society. When the proportion of the elderly reaches 20%, it will enter the super aging society (Guo & Liu, 2024).

According to the 2019 edition of the United Nations World Population Prospects, the number of people aged 60 and over in the world has exceeded 1 billion, and it is expected that this number will increase to 2.1 billion by 2050, accounting for 21.5% of the world's population. In response to this change, many countries have adjusted their development strategies and introduced a series of measures to promote the development of the silver economy, which has changed from the original labor-intensive to the knowledge-intensive and innovation-driven, and the silver market has become the focus of global economic growth (Table 1; Li & Li, 2024).

The market size is calculated in units of 100 million U.S. dollars (USD), and the data obtained is only a rough estimate, which is obtained by synthesizing secondary data and only for reference. In addition, we should realize that the definition of the silver economy is different for different legal entities, which will affect the comparability of the data (Li & Cong, 2024).

Table 1 delineates the aging indicators and projected market size of the silver economy within selected regional economies. Notably, Japan exhibits a well-developed market characterized by an elevated proportion of elderly individuals, with a strong emphasis on technology-driven elderly care and advanced medical services. Similarly, Germany and the United States demonstrate considerable market sizes, each with

Table 1: It can be seen that the aging problem of the population in various countries is becoming more and more prominent, and the scale of the silver economy market in the Guangdong-Hong Kong-Macao GBA is also increasing

Countries and Regions	Share of population aged 65 + (%)	Indicative silver-economy market size (USD, 100 million)	Key segments (illustrative)
Japan	28.4	6520	Smart pension, medical care, pension finance
Germany	21.7	5180	Retirement communities, assistive technology, health management
United States	16.6	7630	Pension real estate, pension insurance, leisure and entertainment
China	12.6	5340	Pension services, health care, pension products
Guangdong-Hong Kong-Macao Greater Bay	17.5	680	Cross-border elderly care, medical care and elderly care, smart elderly care

GBA, Greater Bay Area; USD, United States dollars.

distinct sectoral concentrations, including retirement communities, assistive technologies, and a variety of retirement-related real estate and insurance products. In China, the silver economy market is substantial in absolute value, estimated at 5340 million USD (*i.e.*, 534 billion USD), which is commensurate with the country's expansive population. Specifically within the Guangdong-Hong Kong-Macao GBA, the market is valued at 680 million USD (*i.e.*, 68 billion USD), indicating a significant regional niche with potential for growth. However, it is imperative to approach cross-regional market comparisons with circumspection, given variations in market definitions and methodologies employed for measurement.

There are significant differences in the demographic structure between the two places. The aging rate of the three cities of Dongguan, Shenzhen and Huizhou is relatively low, only 8.3% to 10.0%, while the aging rate of Zhuhai, Jiangmen and Zhongshan is relatively high, about 14.0% to 16.7%. Hong Kong and Macao have higher ageing rates, at 20.9% and 14.7%, respectively. The uneven aging rate of the two places is conducive to the provision of services to the elderly, and the formulation of reasonable solutions is the key to solving the problem, and the key to solving the problem is to enhance the cooperation between the two places, so as to provide the elderly with good medical care and long-term nursing services (Li *et al.*, 2022).

From the perspective of population structure, the GBA is highly diverse, and the proportion of the elderly in the total population is relatively large. There are obvious differences in the number of elderly people among the cities in the region. Some cities with relatively fast economic development, such as Shenzhen and Dongguan, have a relatively low proportion of the elderly in their total population, only 8.3% to 10.0%, while some cities, such as Zhuhai and Zhongshan, have a relatively high proportion of the elderly in their total population, about 14.7% to 16.7%. Hong Kong and

Macao have a relatively high proportion of the elderly in their total population, about 20.9% and 14.7%, respectively. The uneven distribution of the population means that the need for services in the whole region is not balanced, and it is difficult to formulate reasonable solutions for the development of the elderly economy. We should coordinate the cooperation between different regions, unify the service system, and provide good services for the elderly, especially in the construction of community facilities, long-term care, health care and so on (Li *et al.*, 2024). See Figure 2 for details.

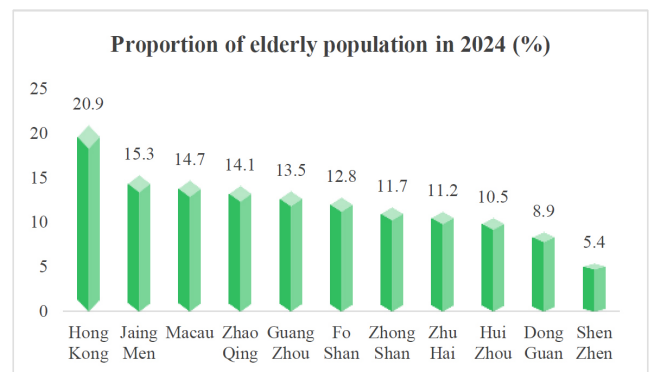


Figure 2. Shows the proportion of the population aged 65 and above in the urban areas of the Guangdong-Hong Kong-Macao GBA in 2024. GBA, Greater Bay Area.

All people aged 65 and above are called older adults, and the population of this group accounts for a certain proportion of the total population of the GBA (Li *et al.*, 2024; Figure 3).

In this study, the population of Hong Kong in 2029, 2039 and 2049 is predicted, and the data is provided by the Census and Statistics Department of Hong Kong (Li *et al.*, 2024).

In order to further analyze the aging rate, we need to predict the total population of Hong Kong, as shown in

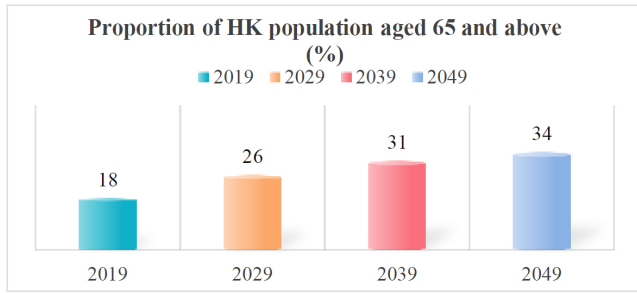


Figure 3. Changes in the proportion of the population aged 65 and over in Hong Kong from 2019 to 2049 (%).

Table 2, and analyze the aging rate and the general trend of population development together, so as to see the relationship between the total population and the aging rate (Li & Gao, 2024).

Table 2: Observed and projected total population of Hong Kong, 2019-2049 (million)

Year	Total Hong Kong population
2019	7.51 million
2029	7.9 million
2039	8.1 million
2049	8.03 million

The above projection is an estimate of the situation in 2050, which is inevitably affected by the model assumptions, data sets and parameter definitions, and the results of the comparative study are only for reference, not for ranking (Liang & Li, 2024). The projection is shown in Figure 4.

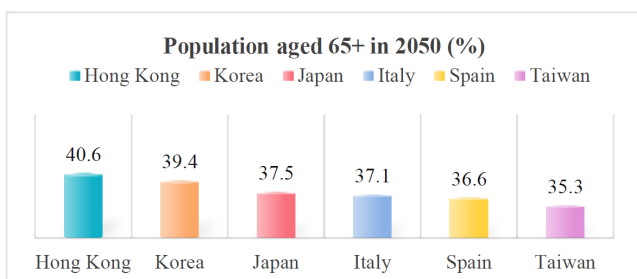


Figure 4. Projected share of population aged 65 and above in 2050.

The elderly are defined as people over 65 years old, and the number of people in this group is expressed in thousands, while the proportion is expressed as a percentage. The data from 2026 to 2036 are all forecast data. The data source distinguishes between "overall" and "local", which are used to describe the population of the whole population and the population of the local area. In the process of drawing three sets of data,

because the measurement units are different, the data can not be compared with the population series, and the proportion can not be compared with the total population (Liu, 2024). Details are shown in Figure 5.

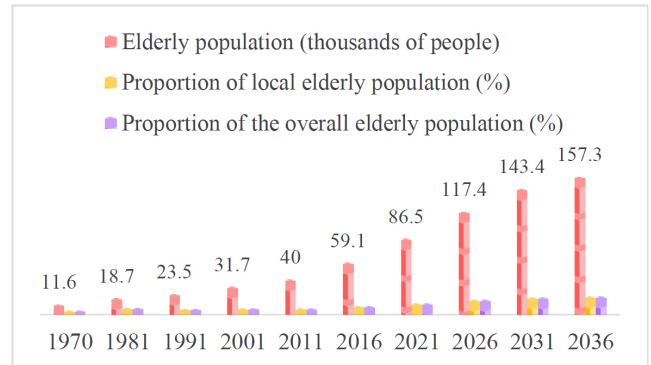


Figure 5. Population ageing in Macao: Historical trend (1970-2021) and projections (2026-2036).

National strategic positioning and development opportunities in the GBA

The construction of GBA is an important strategic decision in the process of China's development, which is the foundation for the formulation of regional silver economy plan. In February 2019, the Outline Plan for the Construction of GBA was issued, which clearly pointed out that the region should play an important role in the "Belt and Road" initiative, become a global urban cluster with strong strength, and become an international center for technological innovation. The construction of the GBA has promoted the coordinated development of the governance system, technology, age services and other contents among different legal jurisdictions (Mao, 2024).

From the perspective of the silver economy, the strategic positioning of the GBA is conducive to the coordinated development of the three major areas: First, the governance framework is more perfect, which can enhance the coordination of policies and reduce the barriers between the three major areas in terms of access to services, financial tools and so on; secondly, the GBA has been identified as an innovation center, which can provide more advanced technology and services for the elderly, including digital health solutions, comprehensive care systems, and more advanced assistive devices; finally, the cluster functions of the three major areas have been continuously improved, which can promote the transfer of knowledge and the application of resources, which is conducive to the construction of a multi-level elderly care service network, and the quality, availability and sustainability of services for the elderly have been significantly improved (Mo, 2024).

POLICY INNOVATION FOR SILVER-ECONOMY DEVELOPMENT IN THE GBA: COLLABORATIVE GOVERNANCE

The implementation of the "silver economy" strategy in the GBA is a cross-regional development, and the medical and health care systems of the mainland and Macao are different, which leads to the difficulty of cross-regional service, medical care and qualification verification. In this case, the GBA Master Plan and the Hengqin Guangdong-Macao In-depth Cooperation Zone have made unremitting efforts to achieve consistency in pension management, simplify cross-border medical services, and achieve mutual recognition of qualifications, which is conducive to the expansion of aging services (Ning *et al.*, 2023).

Collaborative innovation of pension policies in the GBA

Institutional heterogeneity in healthcare systems and medical insurance across Guangdong, Hong Kong and Macao

There are significant differences among the three regions in terms of medical financing, medical service provision and so on, which makes it difficult for the elderly to obtain medical services in the cross-border jurisdiction. Hong Kong has a mixed public and private system, with public services as the main body, but private services are expensive and have long waiting times, and residents can not get them easily. Macao mainly depends on government subsidies to reduce the costs of residents, and the financing model is market-oriented, but it is not extensive. Guangdong is an important part of the social medical insurance system of the Chinese mainland, and its reimbursement policy and coverage are relatively perfect, which is inevitably related to the institutional framework of the Chinese mainland (Song *et al.*, 2024).

The biggest problem in the process of checking the eligibility of the elderly is that the system is not unified, which leads to obstacles in the process of reimbursement and the failure of information sharing, which is the root cause of the failure of the integration of nursing and pension services, and the development of cross-border elderly care services is also affected, as shown in Table 3 (Sun, 2024).

Collaborative innovation of pension- and care-related policies across Guangdong, Hong Kong and Macao

With the rapid growth of the aging population, the Pearl River Delta region urgently needs to improve the policy cooperation between the three places, especially in the fields of medical care, social security and so on, to achieve consistency between the three places, and to provide more medical and health services for the elderly

as shown in Table 4 (Wang *et al.*, 2023).

In order to achieve cross-jurisdictional cooperation, a variety of ways have been adopted, as shown in Table 5. In 2014, the HKSAR government implemented a subsidy program, enabling more senior citizens to access nursing services in the mainland, including Shenzhen, Zhaoqing and Foshan in Guangdong Province. By 2023, more than 6000 Hong Kong elders had participated in the program. The establishment of the Hengqin cooperation mechanism has promoted the integration of cross-border services and housing, and by the same year, more than 7000 Macao residents had purchased property in Hengqin, most of whom were the elderly. The Guangdong-Hong Kong-Macao GBA has promoted the integration of elderly care and health care, and cities such as Guangzhou and Shenzhen have taken the lead in building health service institutions for Macao and Hong Kong residents, providing cross-border health management services with the help of digital tools and telemedicine. The implementation of the above cooperation projects has formed a unique governance pattern, and the elderly care services and pension management of different regions have been effectively integrated (Wang, 2024).

In the field of elderly care services, the arrangement of residential areas is not only to provide accommodation for the elderly, but also to provide them with social security and medical services. At present, the cooperation between Guangdong and the governments of Hong Kong and Macao has become more and more extensive, and the implementation of the elderly health care program in Hong Kong has been fully integrated into the system process of Hong Kong University Shenzhen Hospital, which is enough to show that the cooperation has achieved remarkable results. In the process of medical treatment, a large number of medicines and medical devices in Hong Kong and Macao have been introduced into the Guangdong market through the Hong Kong-Macao connection project, and the number of pilot hospitals in Shenzhen and other cities has reached more than ten, which can provide medical treatment, transfer and recovery services for people in Hong Kong and Macao. Some Hong Kong and Macao residents have participated in the basic medical insurance in Guangdong, but the reimbursement rate is low and the scope of services is not broad. At present, the three regions have promoted policy innovation, digital simplification and coordinated governance, and the cross-border retirement system has been gradually perfected to meet the needs of the growing aging population, which is called the "silver economy" (Wang *et al.*, 2023). The pattern of cross-border stays is summarized in Figure 6.

Table 3: Linking the GBA's national strategic positioning to silver-economy development opportunities

National strategic positioning (GBA Outline, 2019)	Development opportunities (mechanism)	Implications for the silver economy (illustrative)
World-class city cluster	Age-friendly urban design and integrated service infrastructure across cities	Age-friendly communities; accessible transport and housing; integrated health-care-community service networks.
International science and technology innovation centre	Innovation ecosystem for ageing-related technologies and service models	Digital health is the integration of a variety of technologies, including intelligent home apps, assistive devices, telecare services, safety mechanisms and so on, which can play an important role in the management of chronic diseases and the implementation of rehabilitation solutions.
Supporting platform for the Belt and Road Initiative	Standardisation and outward-oriented service capabilities	International service standards; export of aging service technology models; cross-border investment and cooperation.
Demonstration zone for deeper cooperation between the mainland, Hong Kong, and Macao	Cross-jurisdiction policy coordination and service portability	The accessibility of cross-border medical services has been significantly improved, the coordination of long-term care services has been promoted, and the integration of data sharing, payment mechanisms, accreditation standards and other contents has been realized.

GBA, Greater Bay Area.

Table 4: Comparison of pension systems and policies in Guangdong, Hong Kong and Macao.

Policy dimension	Guangdong (Mainland)	Hong Kong	Macao
Elderly-care delivery model	Home and community based; institutions as support	Community services plus residential care; capacity constrained	Institutional and community care; strong public provision/subsidy
Income support and social security	Mainland social insurance	MPF retirement savings plus tax-funded/means-tested assistance	Welfare allowances with contributory elements
Public subsidy intensity	Moderate; varies by programme and city	High subsidy in public services; private out-of-pocket costs higher	High subsidy; cash allowances and subsidised basic services
Institutional care capacity	Approx. 143,000 beds	Approx. 28,000 beds; waiting lists reported	Approx. 4800 beds (indicative)
Cross-border policy instruments	Designated institutions and pilots for Hong Kong and Macao residents in Guangdong	Cross-border residential care and healthcare access pilots in the GBA	Hengqin cooperation-zone pilots facilitating service access for Macao residents

GBA, Greater Bay Area; MPF, Mandatory Provident Fund (Hong Kong).

Table 5: In order to achieve cross-border mutual recognition of medical and pension schemes, it is necessary to analyze the policy areas, grasp the current development situation, and analyze the constraints

Policy area	Key development	Implementation outcome	Remaining constraints
Cross-border use of medical insurance	Hong Kong and Macao residents may access services at designated hospitals in Guangdong	Improves access to cross-border medical services for Hong Kong and Macao residents	Limited coverage and complex reimbursement procedures
Cross-border pension collection	The Hong Kong Guangdong Plan and the Macao Elderly Allowance Scheme are known as cross-border pension arrangements, which facilitate the transfer of pensions for residents of the two special administrative regions.	Facilitates pension collection for eligible Hong Kong and Macao residents residing in Guangdong	Strict eligibility conditions and limited coverage
Mutual recognition of medical personnel qualifications	A record-registration mechanism for medical practitioners within the GBA	Supports cross-jurisdiction mobility of medical professionals	Limited scope; further expansion is needed
Mutual recognition of standards for elderly care institutions	Exploration of harmonised standards for elderly care institutions	Limited progress to date	Divergent standards across jurisdictions hinder coordination

GBA, Greater Bay Area.

Wang *et al.* (2024) pointed out that the elderly care and medical development of the three regions of Guangdong, Hong Kong and Macao has been promoted, and the recognition of each other's certificates has been deepened. In order to achieve the

coordinated development of the silver economy, it is necessary to recognize the medical and pension qualifications of each country and enhance the cross-border mobility. Hong Kong and Macao people can choose to retire in Guangdong and use medical facilities, and they

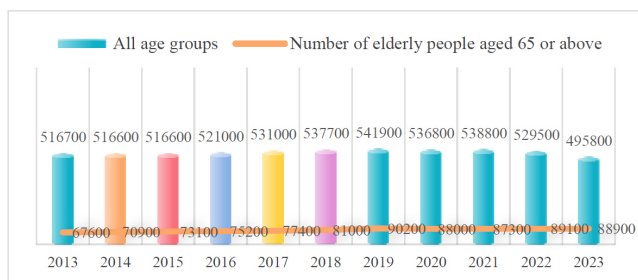


Figure 6. Number of Hong Kong residents in Guangdong Province, 2013-2023 (all ages; 65 + shown separately).

need to ensure that the services provided are convenient and portable, including medical care, insurance reimbursement, pension payment and so on. Although the GBA has achieved a certain breakthrough in the construction of the framework, it is not consistent in the implementation of the agreement, and there are many institutional barriers to be eliminated (Wen & Ao, 2024).

Development of the guangdong-macao in-depth cooperation zone in hengqin: Policy innovation

The approval of the "Hengqin Scheme" is an important institutional breakthrough in the development of the Guangdong-Macao deep-level cooperation zone, which can promote the development of cross-border elderly care cooperation between the two places, and its significance is far-reaching, which is conducive to the growth of the silver economy in the GBA. The pilot project of "Macao New District" has been launched, which is conducive to the development of elderly care services in Macao to the mainland (Yue & Chen, 2024).

In the process of formulating innovative policies in the Hengqin cooperation zone, the access convenience of three major areas is the focus of policy formulation. Firstly, in order to improve the regulatory system, it is necessary to provide good services for medical institutions and nursing homes, so that the elderly in Macao can enjoy the same service standards in Hengqin. Secondly, the "integrated elderly care security" pilot project was launched to explore the possibility of Macao residents collecting pensions in Hengqin and connecting with the mainland pension system. Thirdly, the construction of cross-regional governance framework should be promoted, and the administrative procedures for the movement of medical staff in different regions should be simplified, so as to achieve the deep integration of the elderly care industry of the three places (Yue, 2024).

Looking forward to the future, the cooperative zone model can play an important role in the cooperation between the three places and promote the development

of the demonstration framework, so as to promote the development of elderly care in the three places (Zhang, 2022).

The strategy of building an institutional framework in the Hengqin Plan (see Table 6) is conducive to the development of the silver economy in the GBA, which can provide a good policy testing ground to solve the problems of regulatory discoordination and coordination between regions, and to build a good institutional environment, which requires cross-border cooperation, financial innovation, human resource efforts and institutional experiments. The development of elderly care services and the innovation of related fields have been supported (Zhao *et al.*, 2024).

In the next stage of development, the cities in the GBA will learn from the experience of Hengqin in the process of improving elderly care services, promoting the development of medical undertakings, and innovating pension systems, so as to promote the development of silver-economy on a larger scale and improve its integration and quality (Zhou, 2024).

FROM SECURITY TO VALUE: A NEW MODEL FOR THE DEVELOPMENT OF THE SILVER ECONOMY IN THE GBA

The evolving connotation of the silver economy

The aging economy is also called the silver economy, which is an economic area that can meet the needs of the elderly and provide them with high-quality products and services to promote their health and improve their quality of life. In the past, this concept was only related to the stability of income and the accessibility of medical care, but now, in the process of discussion, people focus on how to make the elderly self-reliant, actively participate in social activities and improve their health, so as to achieve the purpose of creating value and bring social benefits (Chen *et al.*, 2022).

In this case, the development of silver economy in the GBA has been restricted by many factors, including technology, policy and market, and the ecosystem has become more complex, which requires the classification of all industries in the region in the study, and the proportion of each industry is analyzed in combination with the data (Dong *et al.*, 2024). The sectoral composition is summarized in Figure 7.

In the process of constructing the silver economy, the core content of this part should be paid attention to, including the support of daily life, long-term care, rehabilitation and so on, and the proportion of this part in the silver economy of the GBA reaches 25%. The devel-

Table 6: Institutional implications of the Hengqin Plan for silver-economy development

Item	Policy measure (Hengqin Plan)	Implications for the silver economy	Keyword/Theme
Cross-border collaboration	Support Macao institutions to set up medical institutions in Hengqin.	Promote regional synergy of elderly care services.	Cross-border collaboration
Financial innovation	Explore innovative businesses such as cross-border asset management and cross-border wealth management.	Promote innovation in pension financial products.	Financial innovation
Talent policy	Create a good environment for the development of professionals, improve the convenience of life, and encourage young people to start their own businesses and find employment.	Attract and nurture talents related to the silver economy.	Talent policy
Institutional innovation	The construction of a new framework is to promote the cooperation between Guangdong and Macau, and to achieve the goals of mutual benefit, common administration and common development.	Provides a reference for collaborative governance of the silver economy.	Institutional innovation
Cross-border collaboration	Support Macao institutions to set up medical institutions in Hengqin.	Promote regional synergy of elderly care services.	Cross-border collaboration

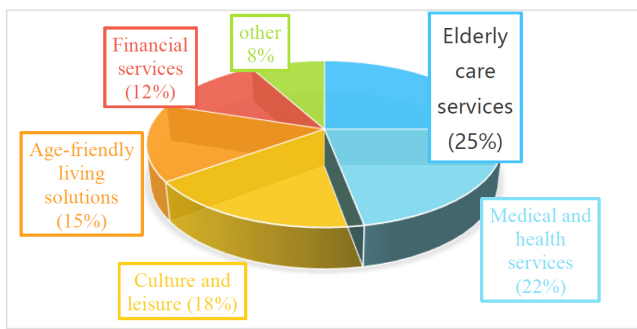


Figure 7. Shows the composition of the silver economy in the GBA. GBA, Greater Bay Area.

opment of this industry is more and more digital and professional, which requires the use of intelligent elderly care platforms to provide home care services for the elderly, and to make full use of Internet technology to meet the needs of the elderly (Li *et al.*, 2024).

This section focuses on health management, chronic disease management and elderly services, which account for about 22% of the silver economy in the bay area, because the region has a strong medical strength and the biomedical industry is more innovative. For example, BGI Group, headquartered in Shenzhen, has been committed to the development of non-invasive screening tools and genetic testing, which can be used for the diagnosis and treatment of age-related diseases (Li & Cong, 2024).

This part focuses on the analysis of the economic area, emphasizing the importance of cultural and educational activities, and introduces a series of fields related to the elderly, including tourism, entertainment and education. These fields account for 18% of the silver economy of the whole bay area, which means that the elderly have a strong demand for cultural participation and social well-being, and some typical cases are introduced, such as the intangible cultural heritage inheritance course organized

by Guangzhou University for the elderly and the hair theater in Zhuhai (Li *et al.*, 2022).

In this part, the focus is on the development of barrier-free solutions and the improvement of the living environment, which can increase the market share of the silver economy to 15%. The development of intelligent and personalized solutions has unlimited potential, and the development of Guangdong-Hong Kong-Macao GBA has attracted more and more attention. For example, UBTECH Robotics Company has launched a series of service robots in Shenzhen, and the company has also built a pilot project for intelligent elderly care in Foshan (Li *et al.*, 2024).

This section examines insurance, wealth management and estate planning, which together account for about 12% of the silver economy in the GBA. Hong Kong's high degree of internationalization and strong role as a financial centre enable it to provide a range of products for older adults, including pension-linked insurance, estate-planning services and wealth-management products. Representative examples include Prudential's pension-linked products and Shenzhen WeBank's "Pension Exclusive Wealth Management Connect" (Li *et al.*, 2024).

In addition, the development of the silver economy is related to the manufacturing industry, which can meet the needs of the elderly, and the participation of more and more older employees is increasing, which is estimated to account for 8% of all economic activities, and the interconnection between the two is becoming stronger and stronger, forming a good ecological environment, which is conducive to the sustainable development of the silver economy in the GBA (Li *et al.*, 2024).

A new model of the silver economy

In the process of building the silver economy pattern in GBA, the previous model has changed, no longer

emphasizing security, but pursuing the goal of value, guiding the elderly to participate in social activities, enhance their ability to resist risks, and no longer regard them as passive recipients of care, but as people who can actively participate in social activities, work and education, which can bring economic and social benefits (Liang & Li, 2024).

The development of GBA provides a good environment for the large-scale migration of population. In the past, Hong Kong and Macao were regarded as international cities, and the degree of internationalization was relatively high. The two cities actively introduced global knowledge in the process of lifelong learning, and took community aging as an important model. The strong innovation environment here can make the silver economy integrate with new business models and advanced technologies. The two cities have a perfect financial market, which can provide favorable conditions for the development of financial products and services for the elderly, including long-term care insurance and pension wealth management (Liao *et al.*, 2024).

The revised model has been adjusted in five aspects, as presented in Table 7. First, the scope of services has been further broadened, not only to meet the basic medical needs of the elderly, but also to provide diversified services to meet the needs of the elderly in culture, education and other aspects; secondly, the industrial structure has changed, from a single service to a diversified industrial network, covering nursing, health, culture, tourism, technology and other aspects, forming a more perfect ecological environment; thirdly, the role of the elderly has changed from passive acceptance to active participation in creating social value, and the development of human capital should be paid more attention to, and they should participate in innovation, entrepreneurship and other activities; fourthly, the use of technology has changed from the use of basic helper equipment to the promotion of smart nursing solutions, including remote monitoring, wearable devices and so on; fifthly, the governance framework has changed from the government to a diversified cooperation, which has promoted the combination of social capital and formed a diversified development model (Liu, 2024).

EXPLORATION OF NOVEL APPROACHES FOR PROMOTING THE SILVER ECONOMY IN THE GUANGDONG-HONG KONG-MACAO GBA: EXAMINATION OF

MARKET TRENDS AND CORRESPONDING STRATEGIC ACTIONS

Market demand of the silver economy

In this study, we should have a deep understanding of the connotation of health care, not only to provide medical services, but also to provide life services, meet the spiritual and cultural needs of the elderly, and improve financial management. The following focuses on the above aspects (Mao, 2024).

Health care needs analysis

Related healthcare service requirements are summarized in Figure 8. The aging of the population has led to the decline of the elderly's physical functions, and the incidence of chronic diseases has increased, which has triggered the demand for health care services, and the aging of the population has become the core content of the silver economy (Ren *et al.*, 2024).

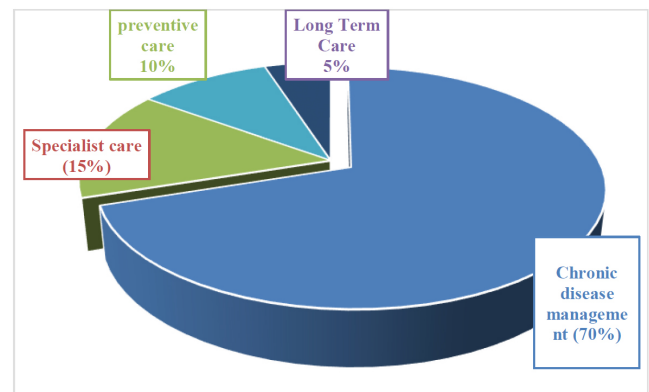


Figure 8. Shows the distribution of health-related services for the elderly in the GBA. GBA, Greater Bay Area.

In the field of medical care, the elderly pursue convenience and high quality of medical services. GBA is a typical case, and Hong Kong and Guangzhou have been recognized as having outstanding medical capabilities, but other cities have obvious differences in the allocation of medical resources, which restricts the mobility of the elderly and makes it difficult to get timely treatment. The demand for specialized services is increasing, especially in the fields of geriatrics and rehabilitation. According to the original data, the proportion of the elderly in this demand is relatively high, and chronic disease management is a key content (Central Clearing Corporation Research Group on the High-quality Development Path of the Guangdong-Hong Kong-Macao Greater Bay Area Bond, 2024).

In recent years, with the increasing popularity of the idea of "prevention first", forward-looking and preventive health management has attracted more attention,

Table 7: Restructuring the silver-economy model: From guarantee to value creation

Core concept	Guarantee-based silver economy model	Value-creation-oriented silver economy model
Expansion of service content	Basic daily living support and medical care	Comprehensive elderly care services, health management, culture and leisure, lifelong learning
Upgrading of industrial forms	Single elderly care service sector	Diversified and integrated industrial clusters
Role positioning of older adults	Passive recipients of services	Active participants in society and value creation
Technology application depth	Auxiliary and assistive applications	Deep integration and intelligent applications
Innovation in development model	Government-led	Government guidance, market leadership, and social participation

especially among the elderly, who have a strong demand for nutritional guidance, regular physical examination and so on (Song *et al.*, 2024).

With the rapid aging of the population, the demand for LTC services is increasing, and the number of disabled elderly people is increasing, which requires the provision of nursing services to this group of people. According to statistics, the number of people who need LTC services is increasing by about 5% per year. At present, the number of disabled elderly people in the GBA has exceeded 1.8 million, and it is expected to increase to 2 million in 2025, with the reduction of family size and the widening of the gap between supply and demand (Sun, 2024).

Analysis of demand for living services

Living-service demand is summarized in Figure 9. The aging of the population in the GBA is more and more prominent, and the demand for personalized services is increasing, and the elderly are willing to live at home, which requires customized assistance in daily life. This paper focuses on home-based care, home modification, special meal service, and transportation services (Wang, 2024).

In the process of providing home-based services, we should not only provide support to the elderly, but also provide them with home care and change their living environment, and build a good community support network for them. In the 2024 demographic survey, it was found that most of the elderly in the GBA region were willing to grow old at home, which indicated that the elderly in this region had a strong demand for home-based services, and this demand was related to the long-standing cultural preferences (Wang *et al.*, 2023).

With the rapid aging of the population, the functional capacity of the elderly is declining, and their need for a safe and comfortable home environment is increasing which requires home settings to be adjusted according to age, and the need for such adjustments is increasing. In recent years, the proportion of barrier-free building

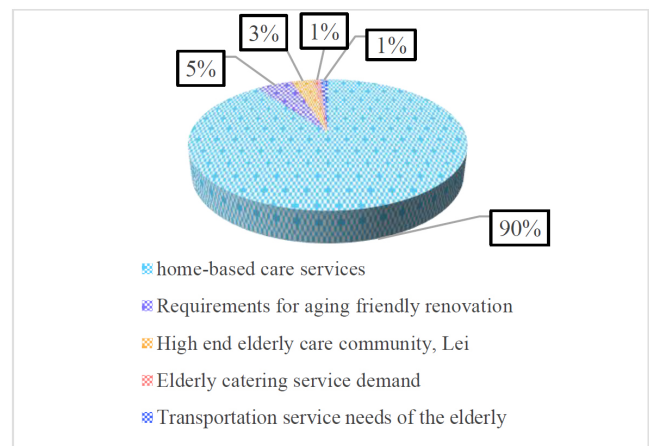


Figure 9. The purpose of this chart is to analyze the demand of the elderly in the GBA for life services. GBA: Greater Bay Area.

design and smart home technology has increased to 5% of the total demand for living services (Wang *et al.*, 2024).

Generally speaking, the demand for high-end elderly care services in major cities is increasing, and the two cities of Shenzhen and Guangzhou are the most prominent in this regard, not only to meet the basic needs of the elderly, but also to organize a variety of cultural activities for the elderly and provide health care services for the elderly, which requires that the proportion of high-end elderly care communities in the housing service market should reach 3% (Wang & Yu, 2024).

In recent years, the demand of the elderly for catering services has changed significantly. At present, the proportion of related services in the living services of the whole region is about 1%. At the same time, the elderly are more and more concerned about transportation, and the proportion of special transportation services for the elderly in the living services of the whole region is also about 1% (Wen & Ao, 2024).

With the rapid development of the silver economy, the infrastructure in the GBA has been significantly

improved, and the living facilities have become more perfect, which has attracted more and more elderly people from Hong Kong and Macao to retire on the mainland. In the past few years, the concept of cross-border retirement has gradually taken root in people's hearts, and the demand for cross-border nursing services has increased significantly, which has brought new market opportunities for the development of cross-border nursing and supplementary services. This paper analyzes the cross-border demand for elderly care services, referring to the research report of the Hong Kong Council of Social Service (2024), and further analyzes the current situation of Hong Kong elderly people in the GBA community (Chen *et al.*, 2022).

Table 8 shows the factors that attracted Hong Kong residents to live in the cities of the mainland GBA. The same conclusion was drawn in Figure 10. The numbers in the table represent the proportion of each reason, and the respondents can choose more than one reason. Preferred destination choices are summarized in Figure 11.

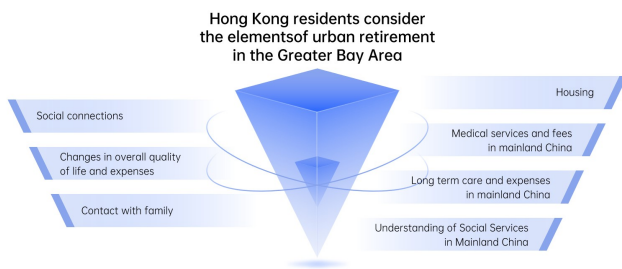


Figure 10. Summarizes the key factors that Hong Kong residents need to consider when evaluating whether they can retire in cities in the mainland of the GBA. GBA, Greater Bay Area.

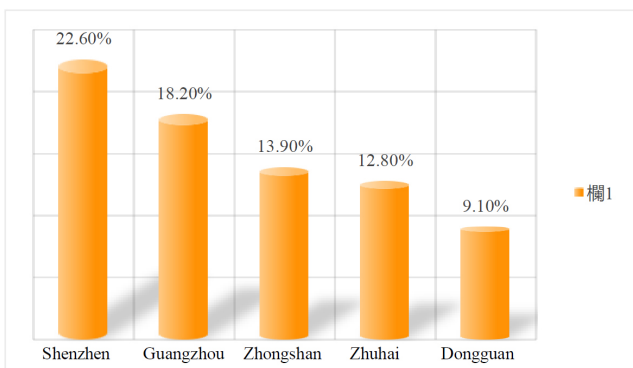


Figure 11. Shares of Hong Kong respondents selecting mainland GBA cities as preferred destinations. GBA, Greater Bay Area.

Spiritual and cultural needs analysis

With the rapid economic development, the living standards of the elderly in the GBA have been significantly improved, and they no longer rely on basic nursing

Table 8: The proportion of the ways of travel in the cities of the mainland of the Guangdong-Hong Kong-Macao Greater Bay Area

Reason	Share of respondents (%) (multiple responses allowed)
More spacious housing/living space	49.50
Lower overall cost of living	44.20
Lower prices for goods and services	26.00
Better urban/community environment	24.70

GBA, Greater Bay Area.

services, but are willing to participate in cultural activities and pursue spiritual well-being, and they are willing to pursue life long learning, which is enough to show that the proportion of the elderly willing to accept education is relatively high, reaching one-third, and they are willing to learn computer skills, language and so on (Zhang, 2022). The elderly have a strong demand for experiential under-takings and cultural activities, and the results of the study show that this group is willing to participate in cultural events, visit museums and watch performances, which can meet their spiritual needs, accounting for about 25%, and the demand for this activity is more prominent, especially the elderly in Hong Kong and Macao, which shows that they are willing to participate in the cultural exchanges of the Guangdong-Hong Kong-Macao GBA (Zhao *et al.*, 2024).

In the market, tourism demand occupies a relatively high proportion, about 20%, which is enough to reflect people's strong spiritual and cultural needs. With the rapid increase of disposable income, the elderly have more and more diversified tourism needs, and a series of products have been specially designed for them (Zhou, 2024).

In the process of meeting the psychological needs of the elderly, social interaction can play a certain role, and the elderly need to interact with others, which occupies 15% of the needs, which means that they want to participate in community activities and interact with more people. In addition, 10% of the elderly are willing to participate in cultural and spiritual activities, which means that they are willing to contribute to the development of society and enhance their self-esteem and dignity (Cai & Dong, 2024).

Figure 12 presents the final proportional distribution of older adults' spiritual and cultural needs in the GBA (Cao *et al.*, 2019).

Problems and countermeasures for the development of the silver economy in the GBA

Stratification of silver consumption power and policy responses

According to the survey, the purchasing power of the elderly in the GBA can be divided into three levels: High, medium and low. The number of people in the high level is relatively small, but they have a strong ability to pay, and they are willing to pay for high-quality elderly care services, so they are the main source of demand for high-end elderly housing projects and formal nursing facilities. The characteristics of this group and its demand are summarized in Table 9 (Li *et al.*, 2024).

From the above table, we can see that 15% of the elderly population in the GBA belongs to the top level, with a monthly disposable income of more than 20000 yuan. This group of people need to be provided with high-end senior living facilities and professional nursing services, and they pursue a high quality of life, hoping to be provided with customized, efficient nursing services (Li *et al.*, 2024).

When middle-income people's assets and income increase, they will enter the high-end market, have a strong demand for senior housing and institutional care, and the medical device industry, smart home technology and so on will have a strong demand for this demographic shift, which will promote the upgrading of the value chain of the silver economy. In the process of upgrading the elderly living industry, many problems need to be solved, such as how to save costs, how to solve the problem of land shortage, and how to balance financial feasibility and personalized service, which requires joint efforts from enterprises, social stakeholders and government departments. Government departments should introduce more reasonable policies, make good urban planning, and enterprises should not only develop new products, but also cooperate with medical and educational institutions to form a perfect service system for the high-end elderly market (Li *et al.*, 2022).

Discussion and response to infrastructure supply bottlenecks

The rapid development of the silver economy has promoted the upgrading of infrastructure, but the current infrastructure is not perfect, which is the key reason for the slow development of the silver economy. There are two prominent problems: One is that the infrastructure is not perfect, and the other is that the number of nursing staff is seriously insufficient, which requires in-depth analysis of the root causes of these problems, and targeted policies should be formulated to promote the sustainable development of the silver economy (Li *et al.*, 2024).

The promotion of age-friendly transformation is an important content in this discussion. According to the statistical data, by the end of 2024, the proportion of



Figure 12. Shows the percentage of elderly people in the GBA who have spiritual and cultural needs. GBA, Greater Bay Area.

urban areas in the nine major cities of the GBA that have achieved age-friendly transformation is only 35%, which is significantly lower than that of developed countries and regions, which is 80% (Li *et al.*, 2024).

Table 10 shows that the nine mainland cities in the GBA have not yet achieved the goal of age-friendly transformation. In the urban areas of Shenzhen and Guangzhou, the transformation rates are 40% and 36%, respectively, meaning that 60% of communities in these cities have not yet been transformed and therefore cannot fully meet the needs of older adults. The corresponding rates in the other cities range from 29% to 35%, which remains insufficient to meet older adults' needs for safety and accessibility, and gaps persist in emergency response systems and barrier-free access.

Using a benchmark of 22 caregivers per 1,000 older adults, the required number of professional caregivers in 2024 is estimated to be at least 77,000 ($3.5 \text{ million} \div 1,000 \times 22$). To assess the severity of the shortage accurately, it is necessary to define the service population clearly and to establish the existing caregiver workforce precisely; otherwise, the gap between supply and demand cannot be measured reliably (Li & Gao, 2024).

The data in Table 11 show that the ratio of older people to caregivers in the Guangdong-Hong Kong-Macao Greater Bay Area is quite different. Hong Kong has 28.6 professional nursing staff for every 1000 people over the age of 65, while Macao has 23.5 and mainland cities have 15.1. There are significant differences between the three areas, which means that some areas in Guangdong have heavy workloads for primary caregivers, which has a negative impact on the quality of nursing services and weakened the service scope, especially for community nursing and long-term nursing (Liang & Li, 2024).

In the process of observation, it is found that the constraints faced by the supply side are inevitably related to structural factors, such as financial resources, policy incentives, career structure and so on, which are

Table 9: Describes the differences in the purchasing power of the elderly in the GBA, and puts forward suggestions for the development of high-end communities, which can provide a basis for the construction of elderly care institutions

Consumption level	Proportion (%)	Monthly disposable income (RMB)	Demand characteristics (high-end senior living communities and institutional care providers)
High	15	> 20,000	Demand in this segment is driven by quality-of-life expectations and preferences for personalised services. Providers should integrate medical care, daily living support, and cultural and leisure facilities
Mid-range	45	10,000-20,000	This segment places greater emphasis on affordability, convenience, and functional design, with growing demand for social interaction and health management services
Base layer	40	< 10,000	For this group, affordability is the primary concern, and the public sector should play a stronger role in providing basic elderly-care services

GBA, Greater Bay Area.

Table 10: Age-appropriate renovation of the nine mainland cities of the GBA

City	Total number of communities	Number of communities renovated for the elderly	Age-appropriate renovation rate (%)
Guangzhou	1520	608	40.0
Shenzhen	1245	448	36.0
Zhuhai	320	112	35.0
Foshan	580	203	35.0
Huizhou	425	136	32.0
Dongguan	610	201	33.0
Zhongshan	280	90	32.1
Jiangmen	350	105	30.0
Zhaoqing	290	84	29.0

GBA, Greater Bay Area.

Table 11: Nursing staffing in the GBA (2024 data)

Region	Elderly population over 65 years old (10,000 people)	Number of professional nursing staff (10,000 people)	Ratio of caregivers per 1000 elderly people
Cities in the GBA of Guangdong province	830	12.5	15.1
Hong Kong	147	4.2	28.6
Macau	8.5	0.2	23.5

GBA, Greater Bay Area.

not perfect, and the legitimacy of care work is not recognized by the whole society, and the system for setting standards and certification is not sound (Liu, 2024).

Accordingly, we should adopt reasonable and effective ways to respond to the above problems: First, we should increase fiscal expenditure and adjust it to the needs of the

elderly in different age groups, so that they can live in a good residential environment and provide them with diversified educational programs to cultivate more professional elderly care personnel. Second, it is necessary to introduce incentive policies, including tax breaks and subsidies, to attract more social capital to participate in the construction of elderly care services. Third, we should innovate the talent cultivation model and cooperate with enterprises to improve the professionalism of staff. Fourth, we should make the whole industry more attractive, set up more distinctive career development routes, and attract more talents with attractive salary structure. Fifth, we should unify the service standards of different age groups, improve service consistency, and make the operation more efficient. Sixth, we should promote technological innovation to improve service efficiency and quality (Lv, 2024a).

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Author contributions

Iat Meng Chan: Conceptualization, Writing—review & editing, Supervision, Project administration. Wei Zhu: Conceptualization, Methodology, Data curation, Formal analysis, Visualization, Writing—original draft. All authors have read and approved the final manuscript.

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Informed consent

Not applicable. There are no human participants in this study, and no personal information and human images can be identified.

Conflict of interest

The authors declare no conflict of interest.

Use of large language models, AI and machine learning tools

When preparing this article, the authors used ChatGPT (GPT-4) solely for language editing and English translation. All content was reviewed and revised by the authors, who take full responsibility for the accuracy and integrity of the article. No other AI tools were used in the preparation of this manuscript.

Data availability statement

In this paper, the data sharing method is not used, because it is not necessary to analyze and process the data set, and the information in the paper comes from the literature.

REFERENCES

- Cai, J., & Dong, X. (2024). [Four-dimensional embedding: The internal logic and optimization path of fine governance of urban communities]. *Journal of Social Sciences of Jilin University*, 64(5), 126-137, 238. <https://doi.org/10.15939/j.jujss.2024.05.sh1>
- Cao, X., Ouyang, S., Yang, W., Luo, Y., Li, B., & Liu, D. (2019). Transport accessibility and spatial connections of cities in the Guangdong-Hong Kong-Macao Greater Bay Area. *Chinese Geographical Science*, 29(5), 820-833. <https://doi.org/10.1007/s11769-019-1034-2>
- Central Clearing Corporation Research Group on the High-quality Development Path of the Guangdong-Hong Kong-Macao Greater Bay Area Bond Market. (2024). [Research on the High-quality Development Path of the Guangdong-Hong Kong-Macao Greater Bay Area Bond Market]. *Bonds*, (11), 26-32.
- Chen, H., Zhao, A., & Kong, X. (2022). Research on tourism development strategy of Zhaoqing Seven Star Cave Scenic Area in the context of Guangdong-Hong Kong-Macao Greater Bay Area. *Meteorological and Environmental Research*, (5), 40-44. <https://doi.org/10.19547/j.issn2152-3940.2022.05.009>
- Dong, J., Song, X., & Lin, Q. (2024). Operational mechanism and targeted pathway of supply and demand adaptation of urban community public sports services from the perspective of embedded governance. *Journal of Shenyang University of Physical Education*, 43(5), 8-14. <https://doi.org/10.12163/j.ssu.20240710>
- Guo, Y., & Liu, J. (2024). [Research on the strategic prospects, historical logic and contemporary value of the construction of international financial hub in the Guangdong-Hong Kong-Macao Greater Bay Area under the goal of building a financial power]. *Southern Economy*, (6), 1-14. <https://doi.org/10.19592/j.cnki.scje.420021>
- Li, F., & Li, T. (2024). [Intergenerational caregiving in rural families and subjective well-being of elderly]. *Journal of South China Agricultural University (Social Science)*, 23(6), 103-116. <https://doi.org/10.7671/j.issn.1672-0202.2024.06.009>
- Li, L., & Cong, H. (2024). [Research on the mechanism, mode and path of intergenerational integration development of community-embedded elderly care and childcare services]. *Jiangxi Social Sciences*, 44(9), 175-185.
- Li, S., Du, Y., & Jiao, P. (2022). Research on the coordinated development of industrial division in the Guangdong-Hong Kong-Macao Greater Bay Area. *Contemporary Social Sciences*, 7(6): 19-36.
- Li, S., Zhang, Y., & Yang Y. (2024). On the coordinated development of cross-border elderly care in the Guangdong-Hong Kong-Macao Greater Bay Area: Problems and countermeasures. *China Civil Affairs*, (17), 35-37.
- Li, Y., & Gao, J. (2024). [Does intergenerational parenting affect the social participation of the elderly?]. *Studies in Labor Economics*, 12(4), 91-116.
- Liang, N., & Li, Q. (2024). [Exploration of the path of ideological and political education for the elderly in the Guangdong-Hong Kong-Macao Greater Bay Area]. *Journal of Guangzhou City Vocational College*, 18(4), 27-30, 49. <https://doi.org/10.3969/j.issn.1674-0408.2024.04.006>
- Liao, L., Huang, W., & Yu, R. (2024). [Research on the governance and social protection of floating population: Taking nine cities in the Guangdong-Hong Kong-Macao Greater Bay Area as an example]. *Urban Observation*, (4), 34-47, 160.
- Liu, Z. (2024). [Community-based shift of childcare services in China: Logic and path]. *Academic Forum*, 47(4), 1-11. <https://doi.org/10.16524/j.45-1002.2024.04.003>
- Lv, F. (2024a). [Research on the development of old-age security policy in the Guangdong-Hong Kong-Macao Greater Bay Area]. *Qin Zhi*, (8), 123-125.
- Mao, Y. (2024). [Research on the development path of the Guangdong-Hong Kong-Macao Greater Bay Area]. *People's Forum*, (24), 40-45.
- Mo, G. (2024). [Inclusive elderly care in the Bay Area: Guangdong actively explores a new model of elderly care services in the Guangdong-Hong Kong-Macao Greater Bay Area]. *China Civil Affairs*, (19), 46-47.
- Ning, Y., Wang, X., Yu, Q., Liang, D., & Zhai, J. (2023). Rapid damage prediction and risk assessment for tropical cyclones at a fine grid in Guangdong Province, South China. *International Journal of Disaster Risk Science*, 14(2), 237-252. <https://doi.org/10.1007/s13753-023-00485-y>
- Ren H., Li H., Hu C., & Feng, Y. (2024). [Internet use, family intergenerational support and well-being of the elderly in the era of digital economy: An empirical study based on CHARLS data]. *Psychological Exploration*, 44(4), 341-346.
- Song, J., Wu, Y., & Tong, S. (2024). [Analysis of the employment pressure of "full-time children" from the perspective of reverse selection]. *Youth Exploration*, (4), 93-103.
- Sun, S. (2024). [Research on the impact of children's intergenerational support on the happiness of the elderly in the agricultural and pastoral areas of Lhasa]. *Shanxi Agricultural Economics*, (12), 88-90, 110.
- Wang, M., Sui, M., Li, Z., Li, Q., & Ni, C. (2024). [Research on the integration of health care and elderly care in the Guangdong-Hong Kong-Macao Greater Bay Area]. *China Market*, (27), 45-50.
- Wang, T. (2024). [Construction of financial power and international financial hub: A review of the 6th Guangdong-Hong Kong-Macao Greater Bay Area Financial Development Forum]. *Guangdong Economy*, (13), 28-31.
- Wang, Y., Wu, K., Zhang, H., Liu, Y., & Yue, X. (2023). [Identifying spatial heterogeneity in the effects of high-tech firm density on housing prices: Evidence from Guangdong-Hong Kong-Macao Greater Bay Area, China]. *Chinese Geographical Science*, 33(2), 233-249. <https://doi.org/10.1007/s11769-023-1303-6>
- Wang, Z., & Yu, C. (2024). [Promoting the development of the elderly care industry in the Guangdong-Hong Kong-Macao Greater Bay Area]. *Macroeconomic Management*, (7), 76-82.
- Wen, J., & Ao, S. (2024). [Research on the participation mechanism of volunteer service in the context of community governance]. *Gansu Social Sciences*, (5), 105-115.
- Yue, J., & Chen, Q. (2024). [Analysis of the evolution of social policy cooperation in the Guangdong-Hong Kong-Macao Greater Bay Area]. *China Public Policy Review*, 25(1), 88-102.
- Yue J. (2024). [Building a "social bay area": Promoting the coordinated development of social policy]. *Public governance research*, 36(4), 18-34.
- Zhang Y. (2022). [The rise of the Greater Bay Area]. *China ASEAN Report*, (6), 31-33.
- Zhao, M., Wang, L., Chen, M., Yuan, M., Wang, J., Zhang, J., & Kang, Y. (2024). [Analysis of the factors that affect the attitude of the elderly toward aging]. *Journal of Nursing*, 39(14), 16-20.
- Zhou S. (2024). [Research on how to cultivate community resilience from the perspective of emotion, relationship and action]. *Journal of Hunan University of Science and Technology (Social Sciences)*, 27(5), 146-153.