

# Digital Divide, Health Literacy, and the Release of Silver Economy Consumption Potential — A Mechanism Study Based on the New Path of “Health Improvement + Digital Empowerment”

Hao Zhou<sup>1</sup>, Nani Ren<sup>2</sup> Xianlin Yuan<sup>3\*</sup>

<sup>1</sup>University of Macau, Macau, China

<sup>2</sup>The First Dongguan Hospital of Guangdong Medical University, Dongguan 523710, Guangdong, China

<sup>3</sup>Guangdong Industry Polytechnic, Guangzhou 510270, Guangdong, China

\*Corresponding author: Xianlin Yuan, [yxljady@163.com](mailto:yxljady@163.com)

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**Abstract:** Amid the aging population trend, the silver economy has become a key engine for expanding domestic demand and promoting consumption, driving the elderly group toward a high-quality life. The advent of the digital economy has accelerated the development of “digital health” formats represented by internet-based medical services, wearable devices, and smart elderly care platforms, providing more intelligent health management and services for the elderly. However, the emergence of the digital divide leads to insufficient health literacy among the elderly, inhibiting the release of their consumption potential. Based on this, this paper analyzes the internal connections and impacts among the digital divide, health literacy, and the release of silver economy consumption potential, explores the relevant paths, and provides new ideas for the development of the silver economy.

**Keywords:** Silver economy; Elderly group; Digital divide; Health literacy; Population aging

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## 1. Introduction

Against the backdrop of the intersection of population aging and the digital economy, the potential of silver consumption as a new engine for domestic demand growth has become increasingly prominent, driving the elderly group toward a healthy and high-quality life. However, the digital divide creates barriers to information access and service usage, reducing the health literacy of the elderly and affecting their consumption willingness and capabilities in areas such as healthcare and smart elderly care<sup>[1]</sup>. Constructing a digital health service system, breaking down barriers through digital health popularization platforms and age-appropriate transformation of intelligent terminals, and realizing the precise connection between digital empowerment and health needs provide

a new paradigm for releasing the potential of the silver economy.

## **2. Digital Divide, Health Literacy, and Silver Economy Consumption Potential: An Analysis of Supply-Demand Mismatch Based on Mediating Mechanism**

### **2.1. The Digital Divide Inhibits the Formation of Health Literacy**

According to the definition of the World Health Organization (WHO), health literacy refers to an individual's ability to obtain, understand, and apply health information and services to make appropriate health decisions and maintain and promote their own health. Eight departments including China's National Health Commission further clarified in the Notice on Comprehensively Carrying Out Healthy Family Construction that it includes dimensions such as mastery of health knowledge, possession of health skills, and practice of civilized and healthy lifestyles. Against the backdrop of the rapid development of digital health, the health literacy of the elderly directly affects their long-term consumption willingness and behaviors, while the digital divide inhibits the formation of their digital literacy. On one hand, due to economic, physiological, and other constraints, the elderly are at a disadvantage in accessing intelligent terminals and internet connectivity, making it difficult for them to access digital health resources, with information channels limited to traditional media; on the other hand, their ability to screen and distinguish digital health information is weak, making them vulnerable to misleading false information, which hinders the improvement of their health literacy <sup>[2]</sup>.

### **2.2. Health Literacy Influences the Release of Silver Economy Consumption Potential**

Health literacy is the core bridge connecting health status and consumption behavior, exerting a key impact on the release of silver economy consumption potential by influencing the elderly's health needs identification, consumption decision-making, and behavioral choices. From the perspective of health needs identification, health literacy determines the depth of the elderly's understanding of their own health status and the accuracy of their needs. Elderly individuals with high health literacy can clearly identify their own health shortcomings, while those with low health literacy struggle to accurately judge their needs due to a lack of scientific understanding of health issues, leading to irrational consumption <sup>[3]</sup>; in addition, health literacy affects the elderly's ability to choose health consumption products and services. For example, those with high health literacy can distinguish product quality and service value based on scientific evidence and rationally select suitable products; while the elderly with low health literacy are easily influenced by false propaganda, resulting in damage to their consumer rights and interests, which affects their consumption willingness and thus the growth of silver economy consumption potential <sup>[4]</sup>.

### **2.3. Low Health Literacy is a Major Factor Widening the Digital Divide and Inhibiting Silver Economy Consumption Potential**

The digital divide does not directly affect the release of silver economy consumption potential but exerts an indirect impact through health literacy as an intermediary variable. On one hand, the emergence of the digital divide to a certain extent weakens the elderly's ability to obtain and process health information, reduces their health literacy level, and makes it difficult for them to form effective demand for high-quality health consumption <sup>[5]</sup>; on the other hand, the insufficient health literacy of the elderly group will further amplify the impact of the digital divide on the development of the silver economy, leading to a "supply-demand mismatch" between the digital health consumption market and the needs of the elderly, thereby compressing the upgrading space of their consumption and hindering the release of silver economy consumption potential.

### **3. The Impact of the Digital Divide on the Release of Silver Economy Consumption Potential**

#### **3.1. Access Divide: Narrowing Consumption Scope and Affecting Resource Acquisition**

Digitalization and population aging are two important characteristics of China's current modernization drive, and the rapid development of digital technology has a significant impact on addressing the issue of population aging <sup>[6]</sup>. Due to factors such as economic conditions, physiological functions, and cognitive concepts, the smartphone ownership rate among Chinese elderly aged 60 and above is about 68.2%, while that among young people aged 18-35 is as high as 98.7%, with the elderly group's ownership rate of intelligent devices far lower than that of young people. In addition, network coverage is also a key factor affecting the consumption of the elderly group. Even if they have intelligent devices, it is difficult for them to achieve stable and low-cost network access, making it impossible for them to continuously participate in digital consumption activities and enjoy the consumption convenience and rich resources brought by digitalization.

#### **3.2. Usage Divide: Weakening the Operational Experience and Participation Willingness of Silver Consumption**

The rapid development of intelligent devices and science and technology has a certain impact on the elderly group's ability to use devices. In terms of digital operation capabilities, due to physiological characteristics such as memory decline and reduced learning ability, the elderly group has a low acceptance of complex digital interfaces and operational processes. Most digital consumption products do not fully consider the usage habits of the elderly, making it difficult for the elderly group to master specific operations <sup>[7]</sup>. At the same time, most current digital consumption services such as e-commerce platforms, health APPs, and online payment tools have insufficient investment in age-appropriate aspects such as interface design, function simplification, and voice interaction, lacking exclusive service modules and manual assistance channels for the elderly, which further exacerbates the difficulty of use for the elderly.

#### **3.3. Capability Divide: Reducing the Decision-Making Quality and Market Trust of Silver Consumption**

The digital consumption market is flooded with complex information and false information. On the one hand, there are a large number of exaggerated health product advertisements and false consumption preferential information in the digital space. Due to the lack of systematic digital media literacy education, the elderly group is difficult to distinguish the authenticity and reliability of information, and is easily misled into irrational consumption behaviors, resulting in consumption risks <sup>[8]</sup>; on the other hand, due to concerns about false information, the elderly group holds a skeptical attitude toward digital products, making it difficult to establish stable consumption trust, leading to the inability to effectively release their potential in high-quality consumption areas such as health preservation, smart elderly care, and quality life.

### **4. Constructing a New Path Based on “Health Improvement + Digital Empowerment”**

#### **4.1. Improve Health Literacy to Stimulate the Consumption Awareness of the Elderly Group**

The health literacy of the elderly group is an important factor in realizing the release of silver economy

consumption potential. The key lies in systematically improving health cognition, accurately identifying health needs, and enhancing consumption decision-making capabilities to stimulate the consumption awareness of the elderly group, promoting their transformation from passive response to active planning, and achieving rapid improvement in health quality.

First, break the limitations of traditional knowledge dissemination to help the elderly group establish scientific and systematic health cognition, thereby awakening their internal demand for health consumption<sup>[9]</sup>. With the help of digitalization, precise push and scenario-based presentation of health knowledge can be achieved, such as building community health digital screens that roll out scenario-based content such as seasonal health preservation and emergency rescue, supplemented by voice explanations and graphic prompts.

Second, communities should vigorously develop and promote digital health management tools to help the elderly group dynamically grasp their own health status, transforming vague health demands into specific consumption needs, and providing a clear direction for the implementation of consumption awareness. At the same time, digital health management tools can collect real-time health data of the elderly group with the help of wearable devices and intelligent monitoring instruments, such as heart rate, blood pressure, sleep quality, and exercise steps, helping the elderly understand their health status, thereby selecting health products in a targeted manner and promoting consumption. Third, due to limited information access channels and insufficient discrimination ability, the elderly group is easily influenced by false advertisements. The government should guide and encourage relevant enterprises to develop and establish digital health service platforms, providing comprehensive and objective consumption information and decision support for the elderly group, and providing correct health consumption information for the elderly group, thereby reducing the perceived consumption risks of the elderly group and enhancing their trust in the health consumption market<sup>[10]</sup>.

## **4.2. Optimize the Age-Appropriate Digital Service System to Bridge the Digital Divide**

To better bridge the digital divide, relevant departments should optimize the digital service system based on the impact of the digital divide on the release of silver economy consumption potential, laying a technical foundation for health improvement and consumption release.

First, the government should cooperate with enterprises to increase digital equipment and network support for the elderly group. At the same time, standardize the age-appropriate design standards for intelligent terminals, requiring equipment manufacturers to consider the physiological characteristics of the elderly at the hardware level to ensure that the elderly can easily obtain digital tools<sup>[11]</sup>; second, the digital consumption industry should reconstruct the age-appropriate service process based on the characteristics and health needs of the elderly group, simplify operational steps, and develop convenient interaction methods such as voice interaction and image recognition to replace complex text input and multi-level menu operations, reducing the understanding and operational burden of the elderly group and enhancing the age-appropriate experience of digital health services; finally, communities should build a hierarchical and classified digital skills training system based on the aging trend and the current status of health literacy formation among the elderly group, focusing on practical skills related to health consumption, such as basic operation of intelligent devices, use of health APPs, and appointment of online medical services, avoiding theoretical and generalized training<sup>[12]</sup>. At the same time, integrate digital skills training with health knowledge popularization, incorporating content such as health information discrimination and false advertisement prevention into training to achieve the simultaneous improvement of digital literacy and health literacy.



### **4.3. Construct a Collaborative Service Mechanism to Provide Support for the Release of Silver Economy Consumption Potential**

Aging is not the end of consumption but the starting point of structural transformation. When health levels improve and digital tools are adapted, the elderly group may also become an important force in high-quality consumption. Therefore, constructing a multi-subject collaborative service mechanism can effectively realize the effective connection of digital technology, health literacy, and silver economy consumption potential, solving the problem of aging.

First, enterprises and health service institutions should develop adapted products and services based on demand data, realizing the precise matching of digital empowerment tools, health improvement services, and consumption needs, and improving resource utilization efficiency. In addition, it is necessary to give full play to technological and market advantages and increase investment in the research and development of age-appropriate products and services.

Second, communities need to build an offline service network, set up physical sites such as digital elderly assistance service stations and health literacy improvement centers, and equip them with professional service personnel and age-appropriate equipment to provide face-to-face digital skills training, health consultation, equipment debugging and other services for the elderly<sup>[13]</sup>; finally, the elderly's resistance to digital technology often stems from unfamiliarity and insecurity, and family emotional support can effectively alleviate this anxiety. Family members need to create an inclusive digital acceptance atmosphere, encourage the elderly to try digital tools, and at the same time carry out fragmented and targeted guidance based on the elderly's learning rhythm and key needs, gradually establishing the elderly's confidence in digital use. The establishment of a tripartite collaborative mechanism can break the limitations of single-subject services, ensure the effective improvement of health literacy, and provide support for the release of silver economy consumption potential.

## **5. Establishing Economic Strategies for Releasing the Consumption Potential of the Silver Economy**

To further release the consumption potential and purchasing power of the elderly and promote the development of the silver economy, the following economic strategies can be formulated:

### **5.1. Enhance the Income Security of the Elderly Group to Consolidate the Consumption Foundation**

First, establish a dynamic adjustment mechanism for basic pensions for urban and rural residents linked to economic development and price levels to ensure that the actual purchasing power of pensions does not shrink due to inflation. It is recommended that the average annual growth rate of pensions be moderately higher than the CPI growth rate, with inclination toward vulnerable elderly groups such as the elderly, disabled, and rural residents. Second, actively expand diversified supplementary pension income channels. On the premise of controllable risks, steadily promote "housing-for-pension" (reverse mortgage pension insurance), reducing the participation threshold through government credit enhancement, tax incentives, and standardized contract templates; at the same time, vigorously develop commercial pension insurance, encouraging funds in personal pension accounts to be invested in long-term and stable pension financial products. In addition, for low-income elderly over 60 years old, pilot issuance of targeted electronic consumption vouchers can be carried out, limited to "silver rigid demand" areas such as health management, rehabilitation aids, community housekeeping, elderly education, and short-

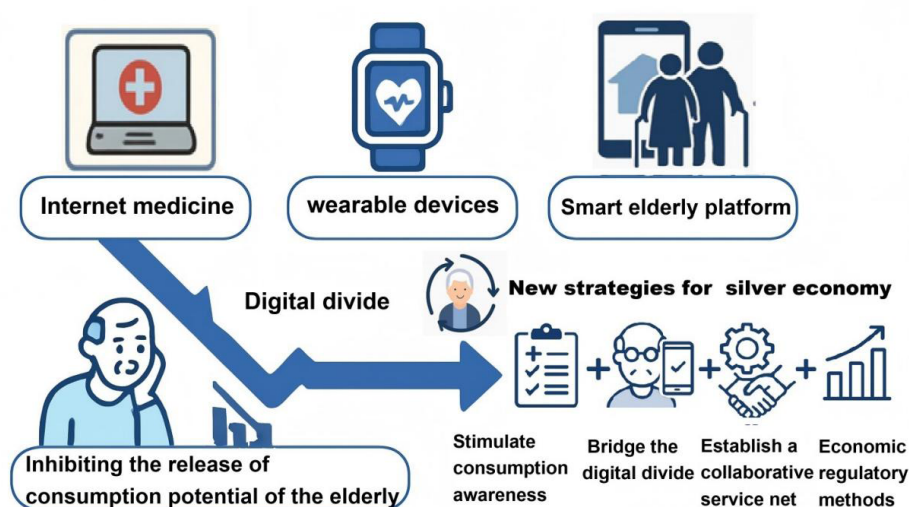
distance cultural tourism. Such consumption vouchers can not only accurately activate the marginal propensity to consume (MPC) but also guide resources to flow to the age-appropriate service industry, forming a virtuous cycle of “demand-supply”.

## 5.2. Strengthen Tax and Financial Support to Reduce Consumption Costs and Enterprise Innovation Risks

On the supply side, it is recommended to provide substantial fiscal and taxation incentives for enterprises engaged in the research and development and production of age-appropriate products. For example, include intelligent nursing equipment, barrier-free home furnishings, and elderly nutritional food into the National Key Supported High-Tech Fields to enjoy the same R&D expense additional deduction treatment; implement immediate refund or reduction of value-added tax on the sales income of age-appropriate products to reduce enterprise costs, thereby promoting the decline of terminal prices. On the demand side, encourage banks, insurance companies, and consumer finance companies to develop exclusive financial tools for the elderly: such as pension savings deposits (providing higher interest rates than ordinary time deposits), interest-free installment loans for large-scale service consumption (applicable to elderly care community occupancy, travel pension packages, home age-appropriate transformation, etc.), and simplify the application process and accept joint guarantees from children. At the same time, explore the establishment of a “silver consumption credit evaluation system”, incorporating social security payment, medical payment, and community service records into credit investigation dimensions to solve the financing difficulties faced by the elderly due to the lack of traditional credit records.

## 6. Conclusion

In summary, by analyzing the internal connections among the digital divide, health literacy, and the release of silver economy consumption potential, as well as the impact of the digital divide on the release of silver economy consumption potential, this paper provides a feasible plan for overcoming the elderly’s digital predicament and activating the silver economy (**Figure 1**). In the future, the integration and innovation of digital technology and health services can be further deepened to help promote the coordinated development of Healthy China and an elderly-friendly society.



**Figure 1.** Research Model Diagram of Digital Divide, Health Literacy, and the Release of Silver Economy Consumption Potential

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## Disclosure statement

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## References

- [1] Zhang M H, Wang J Y, 2024, Research on the Path to Bridging the Digital Divide Under the Background of the Silver Economy. *Financial Customer*, (12): 71-73.
- [2] Huang X R, Xie T A, Gu D Y, 2024, Current Situation and Bridging Path of the Elderly's Health Knowledge Divide. *Medicine & Philosophy*, 45(23): 44-48.
- [3] Liu J L, Wang W K, Han J R, 2024, Research on the Digital Divide of Online Health Services for the Elderly in the Digital Medical Era and Its Countermeasures. *Library and Information Guide*, 9(09): 41-45.
- [4] Xie Y F, Liu Y F, 2024, The Elderly's Digital Divide from the Perspective of Healthy Aging: Causes and Governance. *Journal of Minzu University of China (Philosophy and Social Sciences Edition)*, 51(05): 125-134.
- [5] Liu Y T, He M, 2024, Ethical Issues Arising from the Digital Divide of the Elderly Group in Health Communication and Countermeasures. *Chinese Medical Ethics*, 37(07): 807-812.
- [6] Li N, Tao R, 2024, "Silver Internet Addicts" — A New Challenge to Crossing the "Digital Divide". *Zhengzhou Daily*, (007).
- [7] Li Y E, 2024, Research on the Impact of the Elderly's Digital Divide on Active Aging. Guilin University of Technology.
- [8] Zhang L P, 2024, From Digital Divide to Digital Feedback: Research on the Online Information Resource Acquisition Behavior of Urban Elderly Groups. Shandong University.
- [9] Zhao H H, 2024, Research on the Design of Intelligent Elderly Care Products from the Perspective of Bridging the Silver Digital Divide. Beijing Institute of Fashion Technology.
- [10] Qu J X, 2023, Research on the Digital Survival Status of the "Silver Generation" Under the Background of the Digital Divide. *Communication and Copyright*, (20): 92-95.
- [11] Jiang T, Ye S Y, 2023, The Formation, Influencing Factors and Elimination Path of the Digital Divide Among the "Silver Generation". *Communication and Copyright*, (17): 85-87.
- [12] Zou X Y, Hu J W, 2023, Research on Bridging the Digital Divide of the "Silver Generation" Under the Background of Active Aging. *Science & Technology for Development*, 15(14): 113-116.
- [13] Yang Y H, 2023, Research on the Impact of Internet Use on the Multidimensional Health of the Elderly Under the Background of the Silver Digital Divide. Southwestern University of Finance and Economics.

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