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ИССЛЕДОВАНИЕ ПО ОЦЕНКЕ ВЗАИМОСВЯЗИ И КООРДИНАЦИИ МЕЖДУ ПОТЕНЦИАЛОМ ПЕНСИОННОГО ОБЕСПЕЧЕНИЯ В СЕЛЬСКОЙ МЕСТНОСТИ И ЦИФРОВОЙ ЭКОНОМИКОЙ*

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Аннотация. В этой статье рассматривается скоординированное развитие цифровой экономики и предоставление услуг по уходу за пожилыми людьми в сельской местности. На основе панельных данных из 31 провинции Китая за 2021 год была построена комплексная система индексов для цифровой экономики и обеспечения ухода за пожилыми людьми в сельской местности, которая была проанализирована с использованием метода энтропии и модели степени координации взаимосвязи. Исследование показало, что существуют значительные региональные различия в комплексном уровне развития цифровой экономики и предоставлении услуг по уходу за пожилыми людьми в сельской местности. Восточные прибрежные регионы (такие как Гуандун, Цзянсу и Чжэцзян) продемонстрировали выдающиеся результаты в развитии цифровой экономики и предоставлении услуг по уходу за пожилыми людьми в сельской местности, в то время как западные регионы (такие как Сицзян, Цинхай и Нинся) относительно отстают. Степень координации взаимодействия в целом показала положительную динамику, но уровень скоординированного развития между регионами, очевидно, был разным. Восточный регион вступил в стадию хорошей или высококачественной координации, в то время как западный регион все еще находился в состоянии серьезного или умеренного дисбаланса. В этом документе предлагается придерживаться политики региональной дифференциации, осуществлять целенаправленные меры, углублять сотрудничество между деревнями и общинами, содействовать интеграции ресурсов, повышать цифровую грамотность пожилых людей, преодолевать цифровой разрыв, создавать систему межрегиональных связей и содействовать совместному использованию ресурсов для улучшения скоординированного развития сельского ухода за пожилыми людьми и цифровых технологий. экономика.

Ключевые слова: пенсионное обеспечение в сельской местности; производственный потенциал; цифровая экономика; координация взаимодействия.

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STUDY ON EVALUATION OF COUPLING AND COORDINATION BETWEEN RURAL PENSION SUPPLY CAPACITY AND DIGITAL ECONOMY*

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Abstract. This paper explores the coordinated development of the digital economy and rural elderly care service supply. Based on panel data from 31 provinces in China in 2021, a comprehensive index system for the digital economy and rural elderly care supply was constructed and analyzed using the entropy method and the coupling coordination degree model. The study found that there are significant regional differences in the comprehensive level of digital economy and rural elderly care service supply. The eastern coastal regions (such as Guangdong, Jiangsu, and Zhejiang) have shown outstanding performance in digital economy development and rural elderly care service supply, while the western regions (such as Xizang, Qinghai, and Ningxia) lag behind relatively. The coupling coordination degree generally showed a positive trend, but the level of coordinated development among regions was obviously different. The eastern region had entered the stage of good or high-quality coordination, while the western region was still in the state of serious or mild imbalance. This paper proposes to adhere to regional differentiation policies, implement targeted measures, deepen village and community collaboration, promote resource integration, improve the digital literacy of the elderly, bridge the digital divide, build a cross-regional linkage system, and promote resource sharing to improve the coordinated development of rural elderly care and digital economy.

Keywords: rural pension care; supply capacity; digital economy; coupling coordination.

I. Introduction

With the intensification of population aging in rural China, enhancing the supply capacity of rural elderly care services has become an urgent need to improve people's livelihood and promote social harmony. As an innovative development model, the digital economy has brought new opportunities for the improvement of rural elderly care services. Currently, rural elderly care services face challenges such as low service quality, uneven development, and inefficient resource allocation [1]. In the new context of China's national strategy for population aging, the collaborative innovation

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model empowered by digital technology in building rural elderly care systems offers an innovative solution to address the imbalance in elderly care resources between urban and rural areas. The 2025 Government Work Report of the Third Session of the 14th National People's Congress emphasized accelerating the development of the third pillar of pension insurance and effectively implementing the individual pension system. To proactively address population aging, policymakers will enhance policy frameworks for elderly care services and industries while vigorously developing the silver economy. Meanwhile, the application of digital technologies in rural areas has laid a solid foundation for improving elderly care service provision in these regions. Technologies such as big data, cloud computing, and artificial intelligence can optimize the allocation of rural elderly care resources to improve service efficiency and provide more convenient and personalized services for the elderly. Additionally, digital technologies can promote innovation in rural elderly care service models, such as developing smart elderly care and telemedicine, which are gradually meeting the needs of the elderly. By integrating regional development strategies, exploring the correlation and differential causes between the digital economy and the supply capacity of rural elderly care services through coordinated development holds significant theoretical and practical implications for enhancing China's rural elderly care services.

II. Review of The Literature

How to Effectively Meet the Growing Elderly Care Needs in Rural Areas? Research on rural elderly care service supply involves multiple aspects. Zhang Yanxia et al. (2024) explored pathways for sustainable participation of external entities in rural elderly care services, emphasizing the importance of leveraging their organizational integration advantages to ensure the sustainability of rural elderly care supply [2]. Zhang Jianghai et al. (2024) explored the multifaceted applications of digital technologies in rural elderly care services, including multi-stakeholder communication and precision data collection from a technology empowerment perspective [3]. Meanwhile, A Qi (2024) investigated how evolving family structures reshape elderly care practices, highlighting the coexistence of «discontinuity» and «continuity» in traditional care models [4]. Jin Jing (2024) conducted research on embedded elderly care service supply mechanisms, proposing to enhance rural elderly care governance efficiency through multi-dimensional integration including spatial layout, resource allocation, and structural optimization [5]. Wang Xiangyang et al. (2024), from the perspective of «village community endogenous development», argue that village-endogenous family-based elderly care facilities better align with rural realities and demonstrate strong market adaptability [6]. Wu Chunmei et al. (2024) analyzed the value realization of rural elderly care service supply, proposing solutions such as government-driven initiatives and urban-enterprise collaboration to address existing issues [7]. Wang Liumeng et al. (2023), through examining the evolution of rural pension security systems, highlighted current challenges including imbalanced urban-rural investment allocation and insufficient precision in coverage [8]. Nie Jianliang et al. (2023) proposed a multi-level

resource integration approach that combines structural optimization, supply patterns, and demand alignment to meet diverse needs of elderly populations [9]. These studies collectively provide multidimensional theoretical support and practical guidance for optimizing rural elderly care services, thereby promoting high-quality development in this sector. Furthermore, extensive research has been conducted on the digital economy's impacts on industrial growth, regional development, and social welfare in rural areas. Zhu Tian (2025), Zhao Yixing (2025) and Liu Fang (2025) found that the digital economy can significantly improve the resilience and development potential of commercial circulation industry and manufacturing industry [10-12]. Wang Lei (2025) and Chen Junlong (2025) research shows that digital advancement plays an important role in high-quality development and industrial chain modernization [13, 14]. Meanwhile, Chi Yuanying (2025), Huang Lu (2025), Zhang Wei (2025) and Zhou Yuan (2025) pointed out that digital economy can also help the flow of factors and economic links between regions, narrow the development gap between regions, and promote the realization of common prosperity [15-18]. In addition, Zheng Xiaodong (2025) found that the digital economy has a more significant impact on residents' flexible employment, especially for young people, low-skilled and rural residents [19]. The relationship between the digital economy and old-age care is multi-dimensional. At the macro level, the digital economy has an important impact on the overall development of the elderly care service industry. As Xia Jiechang et al. (2025) pointed out, the digital economy plays an important role in optimizing the allocation of elderly care resources, reducing the cost of elderly care services and improving the elderly care ecosystem, and is an important force to overcome the «low-level equilibrium trap» of the elderly care service industry [20]. At the micro level, participation in the digital economy has a significant optimizing effect on household pension financial asset allocation. Zhu Jingjing (2024) research shows that participation in the digital economy can improve the scale of pension financial assets, enrich the types and enhance the diversification, and has more obvious effects on rural areas, central and western regions, female-headed households and families with low education level [21]. In the spatial dimension, the impact of digital economy on elderly care services has spatial differences and linkage. Sun Yuanxu et al. (2023) found that digital economy has positive spatial spillover effect on urban-rural integrated development, which can promote the improvement of urban-rural integration level in surrounding areas, and also bring new opportunities for rural elderly care service development [22]. Meanwhile, the impact of the digital economy on elderly care remains heterogeneous. Across different age groups, its effects vary according to demographic characteristics. Qiu Wenwen's (2024) research indicates that while the digital economy significantly boosts consumption among younger seniors and urban households, it shows limited effectiveness for older adults and rural families [23]. The digital economy exerts nonlinear impacts and spatial spillover effects on elderly care services. However, its effectiveness in this sector remains constrained by multiple factors and limitations. The digital literacy level of seniors significantly influences the digital economy's impact on elderly

care. Niu Lingjie (2024) emphasizes that while leveraging the digital economy's advantages like low costs and broad coverage can facilitate data sharing and enhance real-time monitoring, these benefits are contingent upon seniors possessing adequate digital literacy [24].

III. Data Selection and Research

(I) Data Sources

As the inaugural year of China's 14th Five-Year Plan, 2021 saw the government roll out key policies like «Digital Villages» and «Smart Elderly Care» that charted the course for rural revitalization and aging population challenges. This policy landscape made 2021 a pivotal moment for implementing these initiatives nationwide. Around 2021, the internet penetration rate in rural China significantly increased, providing infrastructure conditions for empowering rural elderly care through the digital economy. Meanwhile, the accelerated application of digital technologies in fields such as healthcare and education in 2021 further highlighted their potential integration with elderly care services. However, 2021 witnessed a more severe phase in rural elderly care challenges, with traditional models proving unsustainable. While smart elderly care initiatives have shown initial success in pilot regions, the overall sector remains in its infancy. This makes 2021 data particularly valuable for clearly illustrating supply-demand imbalances and underscoring the necessity of digital technology integration. The analysis draws from three key sources: the National Statistical Yearbook, Social Development Statistical Bulletin, and Mark Data Network.

(2) Construction of index system

Zheng Xiaodong (2025) highlights that well-developed digital infrastructure not only creates more flexible employment opportunities for residents but also drives green and low-carbon development [19]. Wang Ruoyu et al. (2025) further demonstrate that digital economy infrastructure can reduce urban carbon emissions by improving energy efficiency and fostering green technological innovation [25]. Wang Meijuan et al. (2025) simultaneously found that digital technology input-output helps reduce transaction costs, alleviate financing constraints, and improve the allocation efficiency of capital markets [26]; Chen Junlong et al. (2025) also found through testing that digital technology input-output has a significant positive impact on the modernization of manufacturing industry chains [14]. In addition, Hao Hanyu et al. (2025) found that the development of digital economy can promote the development of domestic and international double circulation, improve the efficiency and stability of supply chain through promoting the digital transformation and construction of supply chain [27]. Yu Binbin et al. (2025) analyzed data from 274 prefecture-level cities in China between 2003 and 2018, finding that enhancing urban innovation capabilities can significantly strengthen urban economic resilience. The pathway of this effect is mainly achieved through optimizing resource allocation efficiency, promoting industrial structure upgrading, and strengthening talent reserves [28]. To sum up, digital economy infrastructure, digital technology

input and output, digital development and application as first-level indicators can promote the optimization and upgrading of economic structure from various aspects and promote high-quality economic development, as shown in Table 1.

Table 1 – **Digital Economy Index System**

Primary indicators	Secondary indicators	Indicator directions
infrastructure	Capacity of mobile telephone switchboards (10,000)	+
	Optical cable line length (km)	+
	Internet broadband access port (10,000)	+
	Number of computers used per 100 people (units)	+
input-output	Local fiscal science and technology expenditure (in billion yuan)	+
	R&D expenditure of science and technology industrial enterprises (ten thousand yuan)	+
	Technology market turnover (100 million yuan)	+
	Sales revenue of new products of industrial enterprises above designated size (ten thousand yuan)	+
Development of applications	Employment in information transmission, software and information technology services (10,000)	+
	Number of legal entities in information transmission, software and information technology services (No)	+
	Number of domestic patent applications accepted (items)	+
	Number of domestic patent applications granted (items)	+

With the nation's growing emphasis on elderly care, evaluation metrics for elderly care service capabilities have been progressively refined. Wang Xiaofeng advocates assessing rural elderly care supply through economic and medical lenses, while Du Peng emphasizes fulfilling rural seniors' needs by integrating production services, daily living support, healthcare provisions, and social care systems [29]. Tong Feng believes that hardware facilities, financial status and institutional personnel are the important factors to accurately measure rural pension supply [30]. At the same time, Chen Wenbo believes that social security is also an important part of rural pension supply [31]. In general, scholars' research mainly includes financial status, health care, social security, and life services. Based on the current actual needs of rural elderly care, we will build a system by combining existing academic achievements, as shown in Table 2.

Table 2 Rural supply index system

Primary indicators	Secondary indicators	Indicator directions
Medical support capacity	Number of rural health technicians (person)	+
	Number of rural practicing (assistant) doctors (person)	+
	Number of rural registered nurses (person)	+
	Number of beds in rural health institutions (10,000)	+
	Number of new rural cooperative medical care (number)	+
Ability to support the economy	Local fiscal medical and health expenditure (100 million yuan)	+
	Social old-age insurance fund expenditure for urban and rural residents (100 million yuan)	+
	Per capita disposable income of rural residents (yuan)	+
Social support capacity	Number of rural people living separately with five guarantees (10,000)	+
	Number of rural residents receiving subsistence allowances (10,000)	+
	Number of village committees (units)	+

IV. Research Methodology

(1) Entropy Evaluation Method

Because the dimension and dimension unit of different indicators are different, it is necessary to standardize the data so that its value range is between 0 and 1. For positive indicators (the larger, the better), the standardization formula is:

$$X' = \frac{X_{ij} - \min(X_{ij})}{\max(X_{ij}) - \min(X_{ij})} \quad (1)$$

For the negative index (the smaller, the better), the standardization formula is:

$$X' = \frac{\max(X_{ij}) - X_{ij}}{\max(X_{ij}) - \min(X_{ij})} \quad (2)$$

For the standardized data matrix, calculate the proportion of each sample under each indicator:

$$P_{ij} = \frac{X_{ij}}{\sum_{i=1}^n X_{ij}} \quad (3)$$

Use the following formula to calculate the entropy of each indicator:

$$e_j = -K \sum_{i=1}^n (P_{ij} \ln(P_{ij})) \quad (4)$$

in, $K = \frac{1}{\ln(n)}$, n is the number of samples.

The coefficient of variation for each indicator is:

$$d_j = 1 - e_j \quad (5)$$

The difference coefficient is normalized to obtain the weight of each index:

$$w_j = \frac{d_j}{\sum_{j=1}^m d_j} \quad (6)$$

The standardized value of each index is multiplied by its corresponding weight, and then the score of each index is added up to get the comprehensive score of each sample point:

$$z_i = \sum_{j=1}^m w_j x_{ij} \quad (7)$$

Among them, Z_i is the comprehensive score of the i th sample, W_j is the weight of the j th index, and X_{ij} is the standardized value of the j th index of the i th sample.

(2) Coupling coordination degree

The model is used to analyze the coordinated development level of rural pension supply and digital economy. Cohesion refers to the interaction between rural pension supply and digital economy, realizing the dynamic correlation of development, and reflecting the degree of mutual dependence between them. The coupling coordination degree model produces three indicators, namely the coupling degree C value, the coordination index T value and the coupling coordination degree D value. Pass through,

$$C = \sqrt{\frac{F(x) \times G(x)}{\left(\frac{F(x) + G(x)}{2}\right)^2}} \quad (8)$$

$$T = \alpha F(x) + \beta G(x) \quad (9)$$

$$D = \sqrt{C \times T} \quad (10)$$

Calculation, α and β represent the weights, $F(x)$ represents the comprehensive score of rural pension supply, $G(x)$ represents the comprehensive score of digital economy, Rural pension supply has the same weight as digital economy, take $\alpha = \beta$. Finally, the coupling coordination degree D value and the coordination level classification standard are combined to obtain the coupling coordination degree of each item. Calculate the coupling degree C value, the larger the value is, the greater the interaction between rural pension supply and digital economy; The coupling coordination degree D value is between 0 and 1, the larger the value, the higher the degree of coordination between the two systems.

V. Results and Analysis

(1) Comprehensive level evaluation

The comprehensive level of digital economy and rural pension supply is the basis for the coupling and coordination of the two. Based on Equation (1)-(7), this paper measures the comprehensive level of digital economy and rural pension supply in 31 provinces of China in 2021. The results show that, according to the measurement results of the comprehensive level of digital economy and rural pension supply in 31 provinces of China in 2021, the development level of digital economy and the capacity of rural pension supply both show significant regional differences. Guangdong (digital economy 3.77, pension supply 3.21), Jiangsu (digital economy 2.83, pension supply 3.08), Zhejiang (digital economy 2.21, pension supply 2.60), Shandong (digital economy 1.85, pension supply 2.95) and Henan (pension supply 2.37) all performed well in terms of digital economy and rural pension supply. These regions demonstrate remarkable advantages in digital infrastructure, technological innovation, economic development, and policy support. They also excel in key indicators such as the number of rural health professionals, licensed (assistant) physicians, and registered nurses. With well-established social security systems and substantial local fiscal investments in healthcare and social welfare, these areas are driving high-quality elderly care services in rural communities. In contrast, Gansu (digital economy 0.22, elderly care supply 0.65), Hainan (digital economy 0.18, elderly care supply 0.30), Qinghai (digital economy 0.12, elderly care supply 0.16), Ningxia (digital economy 0.12, elderly care supply 0.24), and Xizang (digital economy 0.09, elderly care supply 0.01) all lag behind in both the digital economy and rural elderly care supply. These regions are obviously deficient in digital infrastructure construction, investment in science and technology, technological innovation capacity and economic development level, especially in key indicators such as the number of employees in information transmission, software and information technology services, and the turnover of technology market. In addition, the social security system is not perfect, and the local financial investment in rural elderly care services is limited, which leads to the supply capacity of rural elderly care services being greatly limited, as shown in Table 3.

Table 3 Comprehensive score of digital economy and rural pension supply

area	digital economy	ranking	area	Rural pension supply	ranking
Guangdong	3.77	1	Guangdong	3.21	1
Jiangsu	2.83	2	Jiangsu	3.08	2
Zhejiang	2.21	3	Shandong	2.95	3
Beijing	2.04	4	Zhejiang	2.60	4
Shandong	1.85	5	Henan	2.37	5
Shanghai	1.35	6	Sichuan	2.23	6
Hubei	1.14	7	Hubei	1.90	7
Sichuan	1.12	8	Hunan	1.83	8

area	digital economy	ranking	area	Rural pension supply	ranking
Anhui	1.10	9	Hebei	1.79	9
Henan	1.04	10	Anhui	1.72	10
Hebei	0.88	11	Shanghai	1.68	11
Hunan	0.87	12	Beijing	1.46	12
Fujian	0.79	13	Liaoning	1.30	13
Shaanxi	0.72	14	Jiangxi	1.15	14
Jiangxi	0.64	15	Fujian	1.14	15
Liaoning	0.63	16	Chongqing	1.12	16
Guangxi	0.55	17	Yunnan	1.11	17
Tianjin	0.51	18	Shaanxi	1.08	18
Chongqing	0.49	19	Guizhou	1.08	19
Yunnan	0.42	20	Guangxi	1.07	20
Shanxi	0.40	21	Shanxi	0.94	21
Heilongjiang	0.38	22	Heilongjiang	0.85	22
Guizhou	0.33	23	Inner Mongolia	0.81	23
Inner Mongolia	0.31	24	Xinjiang	0.72	24
Jilin	0.28	25	Jilin	0.71	25
Xinjiang	0.27	26	Tianjin	0.70	26
Gansu	0.22	27	Gansu	0.65	27
Hainan	0.18	28	Hainan	0.30	28
Qinghai	0.12	29	Ningxia	0.24	29
Ningxia	0.12	30	Qinghai	0.16	30
Xizang	0.09	31	Xizang	0.01	31

(2) Coordination development evaluation

In 2021, China's 31 provinces showed significant regional differences in the coordinated development of digital economy and rural elderly care service supply. As shown in Figure 1, Guangdong, Jiangsu, Zhejiang, Shandong, Shanghai and Beijing are at the top, among which Guangdong ranks first with a coupling coordination degree value of 0.995 and a high-quality coordination grade. Jiangsu, Zhejiang and Shandong ranked second, with good coordination or high-quality coordination, while Shanghai and Beijing were in primary coordination and intermediate coordination respectively. With the advantages of developed economy, strong digital economy foundation, strong policy support and rich medical resources, these regions have promoted the efficient and coordinated development of digital economy and rural elderly care service supply. For example, Guangdong has boosted digitalization of rural elderly care through fiscal subsidies and technical support policies; Jiangsu has leveraged integrated urban-rural development; Zhejiang developed the «Internet + Elderly Care» model; Shandong has relied on its solid economic foundation; while Shanghai and Beijing have capitalized on their status as science and technology innovation hubs. All these ap-

proaches have effectively enhanced the digital transformation of rural elderly care services. However, provinces such as Xizang, Qinghai, Ningxia, Gansu, Hainan and Guizhou are relatively lagging behind in the coordinated development of digital economy and rural elderly care service supply, with coordination levels mostly being seriously or close to imbalance. Due to the relatively low level of economic development, insufficient policy support, and relatively scarce medical resources, Xizang, Qinghai and Ningxia have coupling coordination values of only 0.100, 0.179 and 0.190 respectively, which are in a state of severe imbalance. Although Gansu, Hainan and Guizhou have a slight advantage, the coupling coordination degree value is still at a low level, which is 0.310, 0.238 and 0.396 respectively, and the coordination degree is mild or moderate imbalance. These regions are obviously deficient in digital infrastructure construction, policy implementation and medical resource supply, which restricts the coordinated development of digital economy and rural elderly care service supply. Especially Guizhou, although relatively high among the bottom six, its development level still needs to be improved urgently.

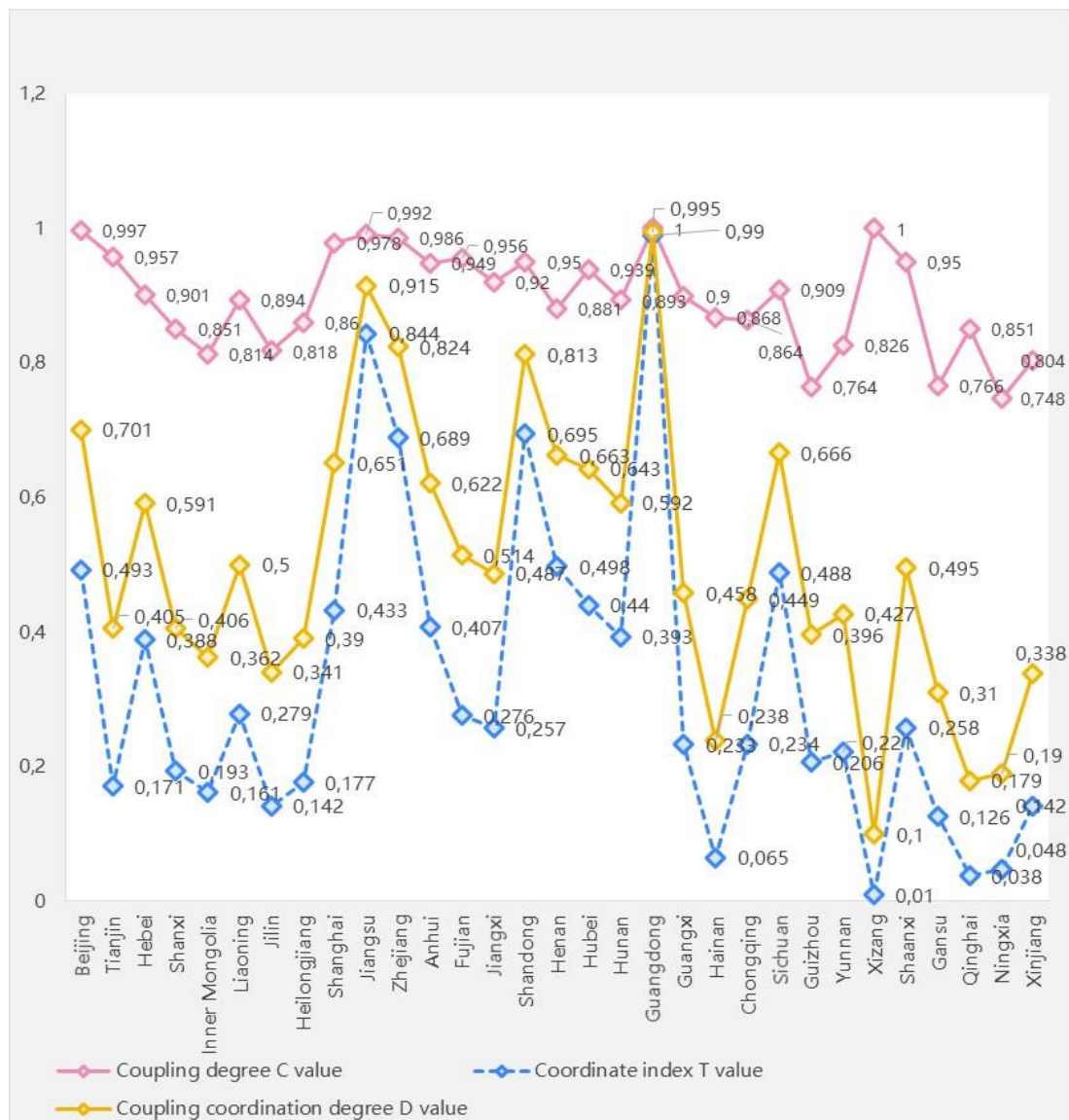


Figure 1 Coupling coordination diagram

VI. Research Conclusions and Policy Recommendations

(I) Research conclusions

This paper, based on panel data from 31 provinces (autonomous regions and municipalities directly under the central government) in China in 2021 and in conjunction with major regional development strategies, constructs a comprehensive index system for digital economy and rural elderly care supply. Using methods such as the entropy method and the coupling coordination degree model, this study conducts a measurement analysis of the coupling and coordination relationship between the digital economy and rural elderly care service supply. The main conclusions are as follows:

1. Significant regional development differences

There are significant regional differences in the comprehensive level of digital economy and rural elderly care service supply. The eastern coastal regions (such as Guangdong, Jiangsu and Zhejiang) have performed outstandingly in the digital economy and rural elderly care service supply, while the western regions (such as Xizang, Qinghai and Ningxia) are relatively lagging behind. The differences are due to uneven distribution of economic development, digital infrastructure, policy support and medical resources.

2. The coupling coordination degree is generally good, but the regional imbalance still exists

The coupling and coordination degree between digital economy and rural elderly care service supply generally showed a positive trend, but the level of coordinated development among regions was significantly different. The developed eastern regions (such as Guangdong, Jiangsu, and Zhejiang) have achieved a high degree of coupling coordination and have entered the stage of good or high-quality coordination; while the underdeveloped western regions (such as Xizang, Qinghai, and Gansu) still have a low degree of coupling coordination and remain in a state of severe or mild imbalance.

3. The development of digital economy plays a significant role in promoting rural elderly care services

By optimizing the allocation of resources, improving service efficiency and innovating service modes (such as smart elderly care and telemedicine), the digital economy has significantly improved the supply capacity of rural elderly care services. However, the impact of digital economy on the elderly care service industry has spatial differences. In eastern China, the promotion effect is more significant due to the perfect digital infrastructure and strong policy support, while in western China, the role is greatly limited due to the weak digital infrastructure and insufficient policy implementation.

4. Digital literacy of the elderly is a key constraint

The digital literacy of elderly individuals significantly impacts how the digital economy enhances elderly care services. While digital technologies provide technical support for elderly care,

their low adoption and usage rates among seniors have become a key constraint hindering the coordinated development between the digital economy and rural elderly care systems.

(II) Policy Recommendations

1. Adhere to the policy of regional differentiation and take targeted measures

Implement differentiated strategies based on regional development characteristics. For western regions with lower coupling coordination levels, priority should be given to strengthening policy guidance, increasing fiscal investment, improving digital infrastructure construction, and promoting the decentralization of medical resources to rural areas. This will address deficiencies in digital infrastructure and healthcare resources while enhancing the supply capacity of elderly care services in rural communities. For the eastern region, it should make full use of the first-mover advantage of digital economy, promote the in-depth development of the «Internet + elderly care» model, and explore new service models such as smart elderly care and telemedicine.

2. Deepen village community collaboration and promote resource integration

Encourage village organizations to collaborate with external entities in developing endogenous elderly care models. Leveraging their proximity to communities and resource integration capabilities, these organizations can effectively coordinate material resources to establish rural-specific elderly care networks. Simultaneously, targeted policies such as tax incentives and service subsidies should be implemented to guide urban medical resources toward rural areas, creating integrated urban-rural healthcare systems that enable telemedicine services and talent sharing.

3. Improve digital literacy and bridge the digital divide among older people

We will promote coordinated efforts in both training and technological upgrades. Through community classes, online tutorials and other forms, we will help the elderly master basic skills such as smartphone usage and participation in telemedicine services, thereby enhancing their trust and reliance on digital elderly care services. At the same time, we should promote the adaptation of digital technology to the elderly, develop intelligent devices and service platforms that meet the needs of the elderly, simplify interface design, add voice interaction functions, optimize operation procedures, so as to reduce the threshold for the elderly to use digital technology.

4. Build a cross-regional linkage system to promote resource sharing

We will actively learn from the successful experience of coordinated development in eastern China, and build a cross-regional elderly care service collaboration platform based on advanced digital technology. Through this platform, the interconnection of elderly care service resources between regions can be realized, the resource allocation can be optimized, and the overall service efficiency can be improved. Secondly, strengthen inter-regional institutional cooperation, reduce inter-regional policy barriers through policy coordination and institutional innovation, and create a good institutional environment for resource flow. On this basis, we will promote the flow of technology, capital and talent from eastern to western regions, help western regions improve their digital infrastructure, and enhance the supply capacity of rural elderly care services.

REFERENCES

1. Wang Cheng and Wang Dianli. Vertical Incentives, Village Governance, and Rural Elderly Care Service Supply [J]. *Journal of South China Agricultural University (Social Sciences Edition)*, 2023, 22 (06) : 126-138.
2. Zhang Yanxia & Xu Rong. Externalization leads to internalization: Exploring the path of sustainable participation of external subjects in rural elderly care service supply [J]. *Journal of Soochow University (Philosophy and Social Sciences Edition)*, 2024, 45 (06) : 67-79.
3. Zhang Jianghai & Zhou Qizheng. Practical Exploration and Optimization Pathways of Technology Empowerment in Targeted Supply of Rural Elderly Care Services [J]. *Journal of Fujian Provincial Party School (Fujian Academy of Governance)*, 2024, 47 (05) : 99-107.
4. Aqi. Fracture and Continuity: The Evolution of Rural Households and Elderly Care in Eastern Qinghai [J]. *Qinghai Social Sciences*, 2024, 45 (05) : 141-155.
5. Jin Jing. Embedded Elderly Care Service Supply Mechanism and Governance Effectiveness in Rural Support Institutions [J]. *Journal of South China Agricultural University (Social Sciences Edition)*, 2024, 23 (04) : 36-47.
6. Wang Xiangyang & Wang Wenbo. «Village-Based Elderly Care Model for Self-Sustaining Households: Addressing Rural Solitary Seniors' Needs in Their Native Communities» [J]. *Journal of Gansu Administrative College*, 2024, 33 (02) : 102-112+128.
7. Wu Chunmei & Hua Wenjian. Analysis of Value Realization in Rural Elderly Care Service Supply under Inclusive Goals [J]. *Agricultural Economics*, 2024, 45 (03) : 91-93.
8. Wang Lulun and Zeng Quanhai. Rural Pension Security in China: Institutional Change, Supply-Demand Imbalance and Improvement Pathways [J]. *Southern Finance*, 2023, 45 (09) : 28-40.
9. Nie Jianliang. Resource Structure, Supply Patterns and Demand Alignment: Effective Supply Pathways for Rural Elderly Care Services [J]. *Social Security Review*, 2023, 7 (05) : 100-115.
10. Zhu Tiantian. Empirical Analysis of the Impact of Digital Economy on the Resilience of Commercial Circulation Industry from the Perspective of Spatial Spillover Effects [J]. *Journal of Commercial Economics*, 2025, 44 (06) : 5-9.
11. Zhao Yixing. The Impact of Digital Economy on the Development Potential of Commercial Circulation – An Empirical Analysis Based on Dual Mediating Effects [J]. *Journal of Commercial Economic Research*, 2025, 44 (05) : 11-15.
12. Liu Fang, Ju Changzhi. Reconstructing New Productive Forces in Commercial Circulation: Theoretical Mechanisms and Empirical Verification of Digital Economy Empowerment [J]. *Journal of Commercial Economics*, 2025, 44 (04) : 15-20.

13. Wang Lei, Zhang Lin, Wang Pengwu, et al. Digital Economy, ESG Performance and High-Quality Development of Manufacturing Industry [J]. Statistical Decision, 2025, 41 (03) : 180-184.
14. Chen Junlong, Tang Qiu, Han Zuli. Research on the Impact of Digital Economy on the Modernization of Manufacturing Industry Chain [J]. Modern Management Science, 2025, 44 (01) : 163-174.
15. Chi Yuanying, Yao Xingjia, Zhang Yanzhao, et al. Digital Economy Reshapes Industrial Spatial Layout in the Capital Metropolitan Area: Macro Effects and Micro Mechanisms [J]. Economic and Management Review, 2025, 41 (02) : 5-17.
16. Huang Lu. Impact of Digital Economy on Consumption Upgrade in Yangtze River Delta Urban Agglomeration [J]. Journal of Commercial Economics, 2025, 44 (05) : 185-188.
17. Zhang Wei, Li Mingwei, Liu Hanran. Digital Economy, Tax Source Diversion and Regional Economic Coordinated Development [J]. International Taxation, 2025, 38 (03) : 14-20.
18. Zhou Yuanren, Chen Menggen. Spatial Correlation Effects and Influencing Factors of Digital Economy Development in China [J]. Economic Theory and Economic Management, 2025, 45 (02) : 96-117.
19. Zheng Xiaodong. The Development of Digital Economy and Flexible Employment of Residents – From the Empirical Evidence of «Broadband China» [J]. Economics and Management, 2025, 39 (02) : 50-58.
20. Xia Jiechang & Luo Jingwei. Empowering the Elderly Care Service Industry to Overcome the «Low-Level Equilibrium Trap» through Digital Economy [J]. Hebei Academic Journal, 2025, 45 (01) : 152-161.
21. Zhu Jingjing. The Impact of Digital Economy Participation on Household Pension Financial Asset Allocation – An Analysis Based on CHFS Microdata [J]. Rural Finance Research, 2024, 45 (08) : 30-42.
22. Sun Yuanxu, Lei Na, and Liu Xiaoqian. Can the Digital Economy Promote Integrated Urban-Rural Development? – empirical evidence from 268 cities in China [J]. Southern Finance, 2023, 45 (12) : 38-53.
23. Qiu Wenwen. Empowering Consumption Growth Among the Aging Population through Digital Economy: An Analysis of Regulatory Effects Based on the Silver Economy [J]. Journal of Commercial Economics, 2024, 43 (06) : 76-79.
24. Niu Lingjie. Practice and Implications of Digital Literacy Services for Elderly in Public Libraries from the Perspective of Cultural Aging [J]. Library, 2024, 52 (08) : 63-68+82.
25. Wang Ruoyu, An Qiguang, and Wang Yongkai. Digital Economy, Energy Efficiency Optimization, and Carbon Reduction [J]. Statistical and Information Forum, 2025, 40 (03) : 87-97.

26. Wang Meijuan, Yu Donghua, Liu Xiaoyan. Does the Digital Economy Promote the Integration of Capital Factor Markets? – An Empirical Analysis Based on Cross-Regional Investments of Listed Companies [J]. Xinjiang Social Sciences, 2025, 45 (01) : 21-31.
27. Hao Hanyu, Du Conghui, Chen Weixiong, et al. How the Digital Economy Facilitates Domestic and International Dual Circulation [J]. Research World, 2025, 38 (03) : 14-27.
28. Yu Binbin, Wang Zhigang. Why Cities Can Become More Resilient – Empowerment Effects of the Digital Economy [J]. Geographical Research, 2025, 44 (02) : 378-399.
29. Du Peng & Wang Yongmei. Opportunities, Challenges and Responses in Rural Elderly Care System Development under the Rural Revitalization Strategy [J]. Hebei Academic Journal, 2019, 39 (04) : 172-178+184.
30. Tong Feng and Liu Jinhua. A Brief Discussion on the Construction of Elderly Care Service Evaluation Index System [J]. Academic Forum, 2015, 38 (12) : 127-130.
31. Chen Wenbo. Evaluation and Improvement of Public Service Quality: A Review of Research [J]. China Administrative Management, 2012, 28 (03) : 39-43.

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