The Management Mechanism of Points-based Elderly Care Service for Low-Income People in China: An Innovative and Social Exchange Approach

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Abstract

Background and Aim: The World Health Organization indicates that by 2050, China's population aged 60 and above will account for 35% of the total population, making it a country with extremely severe aging. Presently, China is entering a moderately aging society. This research aims to identify what factors would affect the potential success of a points-based management mechanism and to develop practical recommendations on how to construct a sustainable management mechanism for points-based elderly care services.

Materials and Methods: This research uses a quantitative analysis method and collected data of 512 responses, and then analyzes the factors affecting low-income people's participation in points-based elderly care service using Structural Equation Modeling (SEM) by SPSSAU.

Results: The results found that the social exchange of points (SEP) has a significant positive impact on the potential success of the point-based management mechanism (PSPMM). Social exchange of points (SEP) has a significant positive impact on the diffusion of innovations (DOI). Diffusion of innovations (DOI) has a significant positive impact on the potential success of point-based management mechanisms (PSPMM). There is a partial mediation effect in the impact of the social exchange of points (SEP) on the potential success of a point-based management mechanism (PSPMM). The mediating variable plays an important role in the relationship between SEP and PSPMM, with an effect value of 0.769 and a positive direction. The direct effect is 0.119, which is also positive. The mediating effect accounts for 86.574% of the total effect, which shows that most of the impact of SEP on PSPMM is transmitted through the mediating variable, but there is still a part that has a direct effect.

Conclusion: The results show that trust and reciprocity in social exchange play a vital role in the potential success of points-based management mechanisms. The perceived benefits of social exchange are also important factors affecting the potential success of the points-based management mechanism, and finally form the psychological identification of low-income people with the points-based management mechanism. Strengthen social exchange factor cultivation, establish trust, and optimize innovation diffusion strategy. Targeted communication. Increase publicity and promotion of the points-based elderly care service model and policy support. Establish a cross-regional coordinated development mechanism.

Keywords: Social Exchange; Management Mechanism; Innovative Diffusion; Mediating Effect

Introduction

With the rapid development of China's social economy, population aging has also entered a stage of rapid progress. As of Friday, September 29, 2023, the population of China was 1,425,549,875 (Worldometer, 2023). According to the seventh national population census in 2020, by the end of that year, the national population aged over 60 reached 264 million, accounting for 18.7% of the total population. It is projected to reach 355 million by 2030, constituting 25% of the total population. The World Health Organization also indicates that by 2050, China's population aged 60 and above will account for 35% of the total population, making it a country with extremely severe aging. Presently, China is entering a moderately aging society. Meanwhile, the average household size is only 2.62 people, the family size has further contracted, the family structure is undergoing unprecedented alterations, and family-based elderly care has encountered significant challenges (Wang, 2022). Aging and elderly care issues have become fundamental matters that affect China's social development presently and in the future (Sheng, 2022).

China Statistical Yearbook (2022) divides the residents living in urban and rural areas into five groups based on their disposable income per capita: low-income, lower-middle-income, middle-income, higher-middle-income, and high-income households (Table 1).

Table 1 Nationwide Disposable Income Per Capita of Households by Income Quintile (Unit: yuan)

Group	All residents (average)	Urban residents	Rural residents
Nationwide	35,128.1	47,411.9	18,930.9
Low-income households	8,332.8	16,745.5	4,855.9
Lower-middle-income households	18,445.5	30,132.6	11,585.8
Middle-income households	29,053.3	42,498.0	16,546.4
Higher-middle-income households	44,948.9	59,005.2	23,167.3
High-income households	83,535.8	102,595.8	43,081.5

Source: China Statistical Yearbook (2022)

From Table 1.1, all urban residents in each group have a disposable income per capita higher than Rural residents. However, the average disposable income per capita of low-income households (8,332.8 yuan), lower-middle-income households (18,445.5 yuan), and middle-income households (29,053.3 yuan) is far lower than the Nationwide average (35,128.1 yuan). It shows that the disposable income of elderly people is low. The superposition of the slowdown in economic growth and the acceleration of population aging will further aggravate the pension pressure on individuals, families, and society. In addition, the development time of elderly care services in China is relatively short, and there are prominent phenomena and problems such as insufficient total supply of elderly care services, the overall quality needs to be improved, unbalanced and insufficient regional and urban-rural development, getting old before getting rich, and being unprepared for aging.

Given this, this research proposes the points-based management mechanism. Points-based elderly care service is a kind of digital virtual currency that can only be used to purchase elderly care services and is professionally managed through a mobile APP. Points-based elderly care service is a new model for the elderly who are over 60 years old. Points as digital virtual currency managed by a special application on cellphones can be collected to get elderly care service without an expiration date. Every person over 60 can get a certain number of free basic points. The elderly over 60 can be caregivers or care-receivers, while the younger can only be caregivers. The caregivers will provide service and get 1 point per hour, while the caregivers will need to pay 1 point per hour to receive service. In the case of insufficient investment in elderly care, points-based elderly care services can be used as pension funds to improve the ability of the elderly, especially low-income people, to purchase elderly care services. This provides a new path to cope with population aging and serves as a reference for supplementing and improving China's elderly care service system.

Objectives
1. To identify what factors would affect the success of the management mechanism of the points-based elderly care service.
2. To develop practical recommendations on how to construct a sustainable management mechanism for points-based elderly care services.

Literature Review
Some countries with a serious aging population have established a complete elderly care security system and gradually developed a long-term care service system, forming a combination of public elderly care services provided by the government and social elderly care services provided by social organizations to meet the needs of the elderly at different levels (Leichsenring, 2012). In developed countries, social organizations are the main force in elderly care services and an important measure to increase the number of elderly care service personnel. Their status and role are becoming increasingly important. More than

60% of elderly care services in Germany are provided by social organizations, 56% in the United States, and more than 80% in Japan (Li, 2015). The rate of public participation in elderly care services is relatively high, and people regard participating in pension services as a very common thing. In the United Kingdom, 48% of people voluntarily participate in elderly care services every year (Zhang, 2015). Citizens of countries such as the United States, Sweden, Germany, Australia, and Japan actively participate in elderly care services in their spare time (Zhang, 2010). In Finland, a country with a complete social care system, private elderly care services have become a new service model and are very popular. The main reason why people are keen to choose private services is that the elderly can easily obtain the services they need, especially those elderly care services that public services cannot provide, and private services are more humane (Jiby et al., 2016). The US has a relatively complete elderly care security system. It has not only established a comprehensive elderly service program (PACE) and a variety of elderly care community models, but has also established an advanced technology-assisted elderly care system and developed robots with elderly care functions to meet the needs of the elderly to improve their autonomy and quality of life. Various elderly care technology products have added impetus to the improvement of the quality and efficiency of American elderly care services (Tracy et al., 2014).

In China, the academic community's comprehensive research on the elderly care issue began in the 1980s during the period of large-scale population migration. After more than 40 years of development, the elderly care model has established a classification standard. First, from the perspective of the source of elderly care information. According to the source of elderly care resource providers, there are only three basic elderly care models, namely family elderly care, social elderly care, and self-elderly care (Mu, 2000). Elderly care resources provided by the family are family elderly care, elderly care resources provided by society are social elderly care, and self-elderly care is an elderly care method that does not rely on family members or social security. Other forms of diversified elderly care models do not fundamentally exceed these three models. From the perspective of the choice of elderly care location. According to the regional characteristics of the urban-rural dual structure, there are urban elderly care and rural elderly care (Chen, 2002); according to the place of residence of the elderly, there are home elderly care and institutional elderly care. The elderly care model of living at home is called home-based elderly care, and the elderly care model of not living at home is collectively called institutional elderly care (Wang, 2014). From the perspective of different elderly care subjects. According to the different elderly care subjects, it is divided into traditional elderly care and modern elderly care (Li, 2007). The main body of traditional elderly care is children, such as family elderly care, home elderly care, and other models; while the main body of modern elderly care is the state and society such as enterprises, units, organizations, institutions, communities, etc., such as community elderly care, institutional elderly care, medical and elderly care combined with mutual assistance elderly care, time bank elderly care and other models (Li. 2007).

Through literature review, it is found that the current situation in China is that multiple elderly care models coexist, and various elderly care models play an important role, but also face different problems. The deterioration of traditional family care, the declining birth rate, and the migration of children have made it increasingly difficult for family members to shoulder the responsibility of caring for the elderly at home. The service costs of home-based and institutional care are too high, and the lack of professional personnel makes it difficult to improve the service quality (Wang et al. 2024). Insufficient funding for community care has led to a serious shortage of care facilities and nursing staff. Voluntary mutual care cannot be sustained for a long time in the face of elderly people who are too old or disabled to help each other (Chen & Zhou, 2024). The focus of medical and nursing care is to pay attention to the medical security issues of hospitals in the elderly, but there is a lack of professional medical personnel. The time bank model has not been promoted and applied due to its complex operation and difficulty in management (Chen, 2024). The elderly care points model has also been initially explored in some communities. Xinxiang City combines elderly care points with consumption points, using the 12349 telephone service platform to cooperate with banks, insurance companies, and merchants. Elderly people can earn points by depositing money in banks, shopping in shopping malls, and providing services to the elderly, which can be used for

various consumption (Dong, 2020). The practice of Ningbo and Dongguan is that people with working ability can earn points for providing services to the elderly and save them, but this is difficult to sustain due to operational difficulties, such as point deposit and withdrawal, and the lack of long-term mechanisms (Li, 2018). China has a large elderly population base and is still increasing rapidly every year. The elderly's demand for elderly care services is more diversified, but the supply of elderly care services is insufficient, resulting in a serious imbalance between the demand and supply of elderly care services. It is necessary to establish a diversified elderly care service guarantee system (Huang, 2024). My country's financial investment in coping with aging is insufficient; the infrastructure and talent reserves for elderly care services are still very weak, and the pension insurance system is still imperfect. It is necessary to build a comprehensive elderly care system, including the institutionalization of a pension fund guarantee (Zhu, 2024).

In summary, the relevant research on China's elderly care services still has the phenomenon of "three focus and three shortcomings": (1) In the classification of elderly care models, the focus is on the study of external aspects such as material, economic, and living of the elderly, and the shortcoming is on the study of internal aspects such as psychology and spirit of the elderly. For the elderly, the spiritual level should be given equal attention to the material level. (2) In the issue of elderly care models, the focus is on discussing the elderly care issues of the elderly from the perspective of the elderly group as a whole, and the shortcoming is on discussing their elderly care issues from the perspective of special groups in the elderly group, such as the elderly who are old, disabled, and semi-disabled. The care problems of special elderly groups are the top priority of elderly care services. (3) In the guarantee of elderly care services, the focus is on the implementation of systems and policies in terms of pension fund guarantee and service guarantee, and the shortcoming is on the guarantee and support of elderly care service talents. The common dilemma facing the current elderly care service is the extreme shortage of various talents, which urgently needs to be solved with great effort. Given this, based on the reflection of the above research results, to cope with the contradiction of the shortage of elderly service talents, the virtual capital of points-based elderly care will be proposed, and a points-based elderly care service model will be constructed to solve the current elderly care issues.

Conceptual Framework

Based on the theories, concepts, and literature review above, the conceptual framework for this research will be as follows in Figure 1.
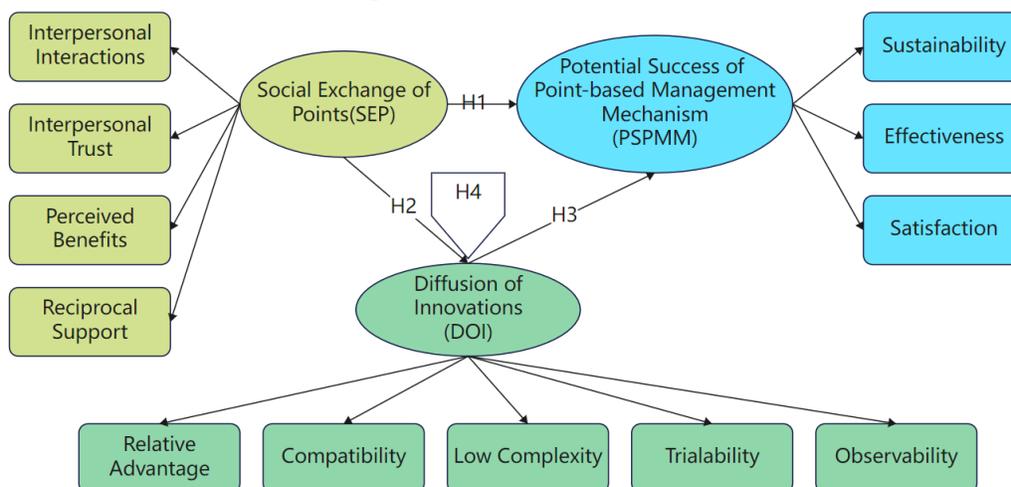
Figure 1 Conceptual Framework
Note: Constructed by the researcher

Based on the conceptual framework above, this research has four hypotheses:

Hypothesis 1: The social exchange of points (SEP) has a direct positive impact on the success of the point-based management mechanism (PSPMM). Social exchange within points-based elderly care services involves interpersonal interactions between caregivers and the elderly. These interactions may include providing care, support, information, and emotional connection. When social exchange is positive, with caregivers providing high-quality care, showing empathy, and meeting the needs of the elderly, it can contribute to the potential success of the management mechanism.

Hypothesis 2: The innovative social exchange of points (SEP) has a direct and positive impact on the diffusion of innovations (DOI) about points.

The innovative features of points-based elderly care service, such as the relative advantage of free distribution to the elderly, and low-income people being able to earn points and use them to purchase elderly care services by helping the elderly, will promote the diffusion of social exchange of points from the level of innovation in the new idea, services, and mutual assistance.

Hypothesis 3: The diffusion of innovations (DOI) about points has a direct and positive impact on the success of the point-based management mechanism (PSPMM). Diffusion of innovations within points-based elderly care services involves the introduction and adoption of new ideas or services that improve the quality, efficiency, or effectiveness of elderly care services. The diffusion of innovations leads to positive outcomes such as reduced costs, increased accessibility, improved quality of elderly care, or enhanced coordination among caregivers and service providers.

Hypothesis 4: Diffusion of innovations (DOI) significantly mediates the relationship between the social exchange of points (SEP) and the Success in the management mechanism of points (PSPMM). The various innovative attributes of points are also more easily recognized by low-income people, and encourage them to adopt and participate in the points-based elderly care service, thereby successfully implementing this management mechanism.

Methodology

1. Population and sample.

This research will use the purposive technique to study only low-income people who have an average disposable income per capita of households lower than the nationwide average in China. The population will be selected through multi-stage sampling based on the following criteria. Firstly, use the stratified technique to divide 31 provinces (excluding Hong Kong, Macao, and Taiwan) into 4 regions: Eastern, Central, Western, and Northeastern Region. Secondly, apply proportion sampling and purposive sampling to get 6 provinces that have the lowest disposable income per capita in each region. Thirdly, select 6 counties from 6 provinces in 4 regions which has the lowest disposable income per capita.

Since the population is unknown, the sample size can be calculated using the Cochran formula as follows: $= \frac{Z^2 pq}{e^2}$

Where:

n is the sample size

Z is the standard normal deviation set at a 95% confidence level (1.96)

e is the desired level of precision (i.e., the margin of error = 0.05)

p is the (estimated) proportion of the population (50%)

q is $1 - p$.

Therefore, n will be:

$$n = \frac{(1.96)^2 \text{ x } 0.5 \text{ x } 0.5}{(0.05)^2}$$

So, n = 384 ≈ 400

More than 80 questionnaires will be sent out to each province. A total of 480 questionnaires will be distributed to ensure that a minimum of questionnaires (400 questionnaires will be returned to the researcher.

2. Research instruments

The questionnaire is the main research tool. The questionnaire will collect the basic information of the respondents and will testify to the opinions and attitudes of low-income people and experts towards elderly care services. The answers will be rated on a scale separated into 5 levels by a Likert scale as follows.

Level	Score
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

The interpretation of the score would be Best (1981, p. 182)

Mean	Significance Level
1.00 - 1.80	Strongly Disagree
1.81 - 2.60	Disagree
2.61 - 3.40	Neutral
3.41 - 4.20	Agree
4.21 - 5.00	Strongly Agree

3. Data collection

The following steps will be exercised. (1) Request a letter from the Management Department for permission to distribute the questionnaire. (2) Send the questionnaire together with the letter above to the target groups via mailing and email. (3) Retrieve the questionnaire. The questionnaires distributed through online surveys will be collected through the APP of Questionnaire Star. The questionnaire distributed face-to-face will be collected on the spot. (4) Establish a database. The questionnaires distributed through online surveys will be generated into an SPSSAU database, and data analysis will proceed accordingly.

4. Data Analysis

Data Analysis is based on the previously established database. To analyze quantitative data, the following steps would be applied: (1) Analyze general information of the respondents by Frequency and Percentage. (2) Analyze points-based elderly care influencing factors by Mean and Standard Deviation (SD). (3) Analyze the relationship between independent and dependent variables by Confirmatory Factor Analysis (CFA) and Correlation Coefficient or Pearson Correlation (r). (4) Analyze the factors affecting low-income people's participation in points-based elderly care service using Structural Equation Modeling (SEM) by SPSSAU.

Results

1. Distribution of Factors

This section presents the informants' distribution of social exchange of points, diffusion of innovations, and the success of the points-based management mechanism, which comprises 13 factors or dimensions, and there are 5 questions for each factor. The mean and standard deviation of every factor are shown as follows (Table 2).

Table 2 Distribution of Factors

Variables	Factors	X̄	SD.	Level
Social Exchange of Points (SEP)	Interpersonal Interactions	4.09	0.91	Agree
	Interpersonal Trust	4.30	0.81	Strongly Agree
	Perceived Benefits	3.97	0.86	Agree
	Reciprocal Support	4.26	0.80	Strongly Agree
Diffusion of Innovations (DOI)	Relative Advantage	4.17	0.83	Agree
	Compatibility	4.15	0.82	Agree
	Low Complexity	3.89	0.89	Agree
	Trialability	4.11	0.82	Agree
	Observability	4.01	0.85	Agree
Potential Success of Points-based Management Mechanism (SPMM)	Sustainability	4.08	0.77	Agree
	Effectiveness	4.06	0.84	Agree
	Satisfaction	4.25	0.81	Strongly Agree

From the results of the table, it is evident that the average score of the mean related to most factors is higher than 4, indicating agreement and strong agreement levels. And the standard deviation is lower than 1, which shows that the survey data has a low degree of dispersion, and most respondents have similar views.

2. Reliability Analysis and Validity Analysis

Reliability analysis is used to study the reliability and accuracy of answers to quantitative data (especially attitude scale questions). Validity research is used to analyze whether the research items are reasonable and meaningful. Validity analysis uses factor analysis, a data analysis method, to conduct a comprehensive analysis through KMO value, commonality, variance explanation rate value, factor loading coefficient value, and other indicators to verify the validity level of the data (Table 3).

Table 3 Reliability Analysis and Validity Analysis

Variables	Reliability Analysis	Validity Analysis		
	Cronbach α (> 0.7)	KMO (> 0.8)	Bartlett's Test	
Social Exchange of Points (SEP)	0.882	0.903	χ2	5641.535
			df	190
			p	0.000
Diffusion of Innovations (DOI)	0.930	0.950	χ2	11617.748
			df	300
			p	0.000
Success of Points-based Management Mechanism (SPMM)	0.904	0.942	χ2	9448.268
			df	190
			p	0.000

From the table, the reliability coefficient is higher than 0.7, indicating that the reliability quality of the research data is very high. Regarding the "α coefficient of deleted items", after any item is deleted, the reliability coefficient will not increase significantly, so it means that the item should not be deleted. This table comprehensively indicates that the data reliability quality is high and can be used for further analysis. Using KMO and Bartlett's test for validity verification, the table above shows that the KMO value is greater than 0.8, indicating that the research data is very suitable for extracting information (indirectly reflecting good validity).

3. Confirmatory Factor Analysis

Based on research results of social exchange and innovation diffusion theories' references and some mature scale structures, this research built a model diagram. It initially had three dimensions: SEP (Social

Exchange of Points), DOI (Diffusion of Innovations), and PSPMM (Potential Success of Points-based Management Mechanism). SEP, DOI, and PSPMM are called second-order factors. Confirmatory factor analysis will be done from structural, convergent, and discriminant validity perspectives.

SEP has four latent variables: A1 (Interpersonal Interaction), A2 (Interpersonal Trust), A3 (Perceived Benefits), and A4 (Reciprocal Support). DOI has five: B1 (Relative Advantage), B2 (Compatibility), B3 (Low Complexity), B4 (Trialability), and B5 (Observability). PSPMM has three: C1 (Sustainability), C2 (Effectiveness), and C3 (Satisfaction). These 12 latent variables are first-order factors. Each has 5 items as measurement variables, so 60 Likert scale items in total measure them.

The preset model structure of this research is: A1-A4 items measure SEP, B1-B5 items measure DOI, and C1-C3 items measure SPMM. The specific model diagram is shown in Figure 2.
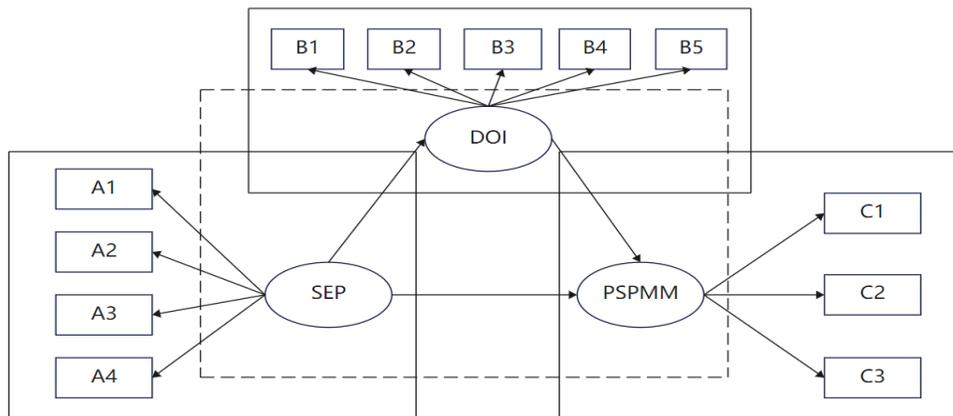
Figure 2 Model Diagram of Second-order Factors
Note: Constructed by the researcher

3.1 Model Parameter Estimation of Social Exchange of Points

Table 4 Compliance of Model Fitting Indicators for the Structural Validity

Common indicators	χ2/df	GFI	RMSEA	RMR	CFI	NFI
Judgment criteria	<3	>0.9	<0.10	<0.05	>0.9	>0.9
Value	4.440	0.872	0.082	0.047	0.916	0.894
	acceptable	acceptable	pass	pass	pass	pass

From table 4, the χ2/df =4.440, which is less than 5 and is acceptable; RMSEA=0.082<0.10; RMR=0.047<0.05; Most of the other fitting indexes are all above 0.9 or near 0.9, indicating that the structural validity of the model is good and meets the research conditions.

3.2 Model Parameter Estimation of Diffusion of Innovations

Table 5 Compliance of Model Fitting Indicators for the Structural Validity

Common indicators	χ2/df	GFI	RMSEA	RMR	CFI	NFI	NNFI
Judgment criteria	<3	>0.9	<0.10	<0.05	>0.9	>0.9	>0.9
Value	4.793	0.825	0.086	0.035	0.924	0.906	0.916
	acceptable	acceptable	pass	pass	pass	pass	pass

From table 5, the χ2/df =4.793, which is less than 5 and is acceptable; RMSEA=0.086<0.10; RMR=0.035<0.05; Most of the other fitting indexes are all above 0.9 or near 0.9, indicating that the structural validity of the model is good and meets the research conditions.

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3.3 Model Parameter Estimation of the Potential Success of the Points-based Management Mechanism

Table 6 Compliance of Model Fitting Indicators for the Structural Validity

Common indicators	χ2/df	GFI	RMSEA	RMR	CFI	NFI	NNFI
Judgment criteria	<3	>0.9	<0.10	<0.05	>0.9	>0.9	>0.9
Value	4.947	0.866	0.088	0.030	0.947	0.935	0.939
	acceptable	acceptable	pass	pass	pass	pass	pass

From table 6, the χ2/df =4.947, which is less than 5 and is acceptable; RMSEA=0.083<0.10; RMR=0.035<0.05; Most of the other fitting indexes are all above 0.9, indicating that the structural validity of the model is good and meets the research conditions.

For the convergent validity test, all AVE values corresponding to the factors are all greater than 0.5, and the CR values are all higher than 0.8, which means that the data of this analysis has good aggregation (convergent) validity. For the discriminant validity test, all AVE square root values are greater than the maximum value of the absolute value of the correlation coefficient between factors, which means that they have good discriminant validity.

3.4 Fitting and Evaluation of Structural Equation Modeling

This section will construct a structural equation model of the influencing factors of the potential success of the point-based management mechanism, and conduct a fitting test on the hypothetical model proposed in this research in combination with the scale data.

Table 7 Model Fitting Indicators

Common indicators	χ2/df	GFI	RMSEA	RMR	CFI	NFI	NNFI
Judgment criteria	<3	>0.9	<0.10	<0.05	>0.9	>0.9	>0.9
Value	1.844	0.826	0.041	0.029	0.914	0.831	0.910
	pass	acceptable	pass	pass	pass	acceptable	pass

Several common indicators, including χ2/df=1.844<3, RMSEA=0.041<0.10, RMR=0.029<0.05, CFI and NNFI all meet the standards, GFI and NFI are close to 0.9, and most common indicators meet the fitting standards, indicating that the overall model fitting validity is good. It is generally believed that the model fits well, and the model set according to the theory is adapted to the actual sample data.

Most commonly used fitting indicators meet the standards or meet the standards. The estimated values of each parameter reach the significance level, and the measurement errors are all positive and significant, indicating that the model fits well. The coefficients of the three influencing relationship paths are statistically significant (p<0.05). The hypothesis of a positive influencing relationship between factors proposed during the model setting is established. The structural equation modeling path diagram (including parameters) of this example is shown in Figure 3.
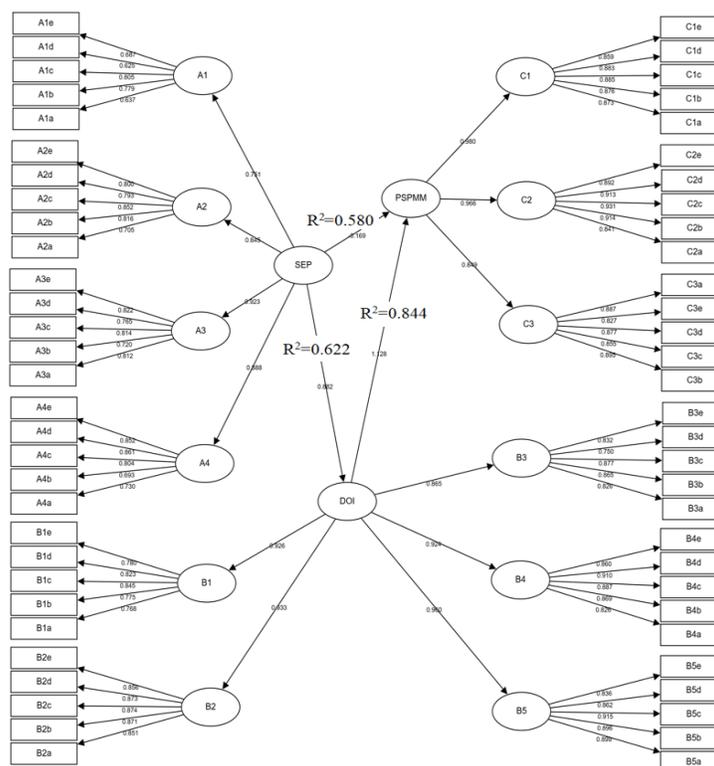
Figure 3 Path diagram of the structural equation modeling of this research
Note: Constructed by the researcher

3.5 Mediation Effect Analysis

According to the research design, Social Exchange of Points (SEP) is the independent variable X, Diffusion of Innovations (DOI) is the mediating variable M, and Potential Success of Management Mechanism (PSPMM) is the dependent variable Y. All of them are quantitative data, forming a simple mediating effect.

The parameter estimation and test of the three regression models of the mediation effect are shown in Table 14, which presents the results of the three regression models of the mediation effect. The second column is the total effect regression equation result of X→Y, the third column is the regression equation of the first half of the mediation path of X→M, and the fourth column is the regression equation of the second half of the mediation path and direct effect of M→Y.

Table 8 Parameter estimation and test of three regression models of mediating effect.

	SPMM	DOI	SPMM
Constant	0.454**	0.281*	0.216*
	(3.270)	(2.160)	(2.542)
SEP	0.888**	0.907**	0.119**
	(26.525)	(28.949)	(3.594)
DOI			0.847**
			(29.391)
Sample size	512	512	512
R^2	0.580	0.622	0.844
AdjustR^2	0.579	0.621	0.844
F □	$F_{(1,510)}$ =703.573, p=0.000	$F_{(1,510)}$ =838.066, p=0.000	$F_{(2,509)}$ =1378.838, p=0.000

SPMM	DOI	SPMM

* p<0.05 ** p<0.01. The t-value is in brackets.

The regression coefficient of SEP on SPMM is 0.888, which is significant at the level of a=0.01; that is, the total effect is significant, and the argument is based on the mediating effect. From the table above, we can see that the mediation effect analysis involves a total of 3 models, which are as follows:

SPMM=0.454+0.888*SEP
DOI=0.281+0.907*SEP
SPMM=0.216+0.119*SEP+0.847*DOI

Table 9 Results of total effect, mediating effect, direct effect, and effect proportion

Item	Test results	c Total effect	a*b Mediation Effect	c' Direct effect	Effect calculation formula	ratioEffect ratio
SEM=>DOI=>SPMM	Partial mediation	0.888	0.769	0.119	a * b / c	86.574%

The results of the total effect, mediating effect, direct effect, and effect proportion of this research are shown in Table 4-42. In column 5 (direct effect c), the regression coefficient of SEP on SPMM is 0.119, which is significant at the a=0.01 level. The mediation effect ab=0.769 is positive, and the direct effect c'= 0.119, also a positive number, and the two directions are the same, indicating that the mediation effect is partial, and the proportion of the mediation effect to the total effect is ab/c=0.769/0.888=86.574%.
The results of hypothesis testing for the structural equation modeling in this research are detailed in Table 16.

Table 10 Hypotheses Testing

	Hypotheses	
H1	The social exchange of points (SEP) has a direct positive impact on the potential success of the points-based management mechanism (PSPMM).	√
H2	The innovative social exchange of points (SEP) has a direct and positive impact on the diffusion of innovations (DOI) about points.	√
H3	The diffusion of innovations (DOI) about points has a direct and positive impact on the potential success of the points-based management mechanism (PSPMM).	√
H4	Diffusion of innovations (DOI) significantly mediates the relationship between the social exchange of points (SEP) and the potential success of a points-based management mechanism (PSPMM).	√

Note: (√) accepted hypothesis, (×) rejected hypothesis

Discussion
The results show that trust and reciprocity in social exchange play a vital role in the potential success of a points-based management mechanism. This means that the degree of trust of low-income people in the points-based management mechanism and their expectations of the rewards they will get from participating in the point system are key factors in determining whether the mechanism can succeed. In addition to trust and reciprocity, the perceived benefits of social exchange are also important factors affecting the potential success of the points-based management mechanism and finally form the psychological identification of low-income people with the points-based management mechanism. Psychological identification refers to the sense of belonging and value identification of low-income people with the points-based management mechanism. When low-income people can perceive the benefits brought to them by the points-based management mechanism and can change their retirement life, they will psychologically identify with the concept of the points-based management mechanism and regard it as part

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Tan, Y., Santisarn, B., Limsiritong, K., & Suksermsongchai, S. (2025). The Management Mechanism of Points-based Elderly Care Service for Low-Income People in China: An Innovative and Social Exchange Approach. International Journal of Sociologies and Anthropologies Science Reviews, 5 (5), 319-332; DOI: **https://doi.org/10.60027/ijsasr.2025.6953**

of their social life. This research also shows that social exchange behavior can promote the spread of innovative ideas of points in the community, which is an important part of the diffusion of innovations theory. Social exchange of points (SEP) not only directly affects the potential success of the points-based management mechanism (PSPMM) but also indirectly promotes the success of the points-based management mechanism by affecting the diffusion of innovations (DOI) of points.

This research conducts an empirical analysis of the proposed research hypothesis and verifies many of the theoretical deductions in this research. The mediating effect is used to test the impact of the social exchange of points on the potential success of the points-based management mechanism and the mediating effect of innovation diffusion. Based on the social exchange theory and innovation diffusion theory, this research combines literature and existing research results to construct the theoretical model and conceptual framework, and uses structural equation modeling to fit the model to derive the influence relationship between the variables. The research conclusions are drawn through SEM analysis: SEP and DOI have a significant positive impact on PSPMM. The mediating variable of DOI plays an important role in the relationship between SEP and PSPMM, with an effect value of 0.769 and a positive direction. The direct effect is 0.119, which is also positive. The mediating effect accounts for 86.574% of the total effect, which shows that most of the impact of SEP on PSPMM is transmitted through the mediating variable, but there is still a part that has a direct effect. These results answer the first research objective.

Conclusion

1. Theoretical Recommendations: Strengthen social exchange factor cultivation, establish trust, and optimize innovation diffusion strategy. Targeted communication.

In promoting the points-based management mechanism, focus on building a trust mechanism. For instance, transparent point acquisition and exchange rules make low-income people believe in fair rewards. Strengthen supervision for fairness and reliability to enhance their trust. Promote interaction: Design measures to encourage reciprocal behavior, like setting up mutual assistance tasks. Participants get point rewards while providing services, promoting cooperation, strengthening the trust-reciprocity cycle, and increasing their enthusiasm and recognition. Enhance benefit perception publicity: Strengthen publicity of the mechanism's benefits. Through case sharing and result display, low-income people understand how it improves their lives, enhancing their psychological recognition and belonging. For example, hold regular result report meetings.

2. Policy Recommendations: Increase publicity and promotion of the points-based elderly care service model and policy support.

Actively carry out multi-channel and all-round publicity and promotion activities to improve the public's awareness and understanding of the points-based elderly care service model. Use official media platforms, community publicity channels, etc., to introduce in detail the advantages, participation methods, points acquisition, and redemption rules of the points-based elderly care service, and enhance the trust and willingness of new users, especially low-income people and residents in rural areas, to participate in this model. At the same time, formulate relevant policies to encourage all sectors of society to participate in the promotion of the model, and give certain rewards or policy preferences to social organizations and enterprises that actively participate in publicity and promotion. In terms of policy support, further improve the policy system related to the points-based elderly care service and clarify its status and role in the elderly care service system.

3. Practical Recommendations: Establish a cross-regional coordinated development mechanism.

There are differences in development and elderly care resources among regions. A cross-regional mechanism based on point exchange allows older adults to use points across regions, improving resource allocation. Developed regions have more resources, and those in less developed areas can use points there. It promotes coordinated development in the industry, standards, and training. The government achieves this by a unified national platform and coordinating policies, solving imbalances and improving the overall level, and promoting regional coordination.

Recommendations

To enhance the effectiveness of the points-based elderly care service management mechanism, strengthening trust and reciprocity is essential. Transparent rules for earning and redeeming points, along with reliable supervision, can build confidence among low-income participants. Encouraging reciprocal interactions, such as rewarding voluntary services with points, can further promote engagement.

Raising awareness of the benefits of this system is also crucial. Targeted communication strategies, including case studies and public forums, can help participants recognize the positive impact of the mechanism. Effective knowledge-sharing networks and collaborations with local organizations can facilitate the diffusion of innovation and improve adoption rates.

Government support is necessary for policy integration and sustainability. Providing incentives for social organizations and businesses to participate in elderly care services can expand the model's reach. Additionally, establishing a cross-regional coordination mechanism will help address disparities in elderly care resources, allowing for better service accessibility across different areas. A unified national platform for point exchanges can further optimize resource allocation and service equity.

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