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A Study on Estimating the Willingness to Pay for Long-Term Care Insurance among the Elderly in Shaanxi Province

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Abstract: Shaanxi Province faces severe population aging and a large disabled elderly population, while traditional family care is weakening and social service supply remains insufficient. Using the CHARLS 2023 Shaanxi sub-sample (N=1,850) linked with medical-insurance settlement data and semi-structured interviews, this study applies hierarchical linear modeling, structural equation modeling, actuarial projection, and grounded-theory coding to estimate the willingness to pay (WTP) for long-term care insurance (LTCI) and its determinants. Results show that WTP is significantly influenced by price, disability level, chronic-disease count, income, and government health expenditure. Under the Hanzhong, Chongqing, and Chengdu financing schemes, contribution rates between 0.4 % and 0.7 % can simultaneously secure fund sustainability and generate mental-health benefits. Interviews reveal that “institutional trust, care dignity, and economic security” are key drivers of WTP. The findings provide micro-level evidence for optimizing Shaanxi’s LTCI system.

1. Introduction

Against the backdrop of the in-depth advancement of the Healthy China strategy, population aging has become a significant issue in China's social development. As an institutional innovation to address disability risks and alleviate family care burdens, long-term care insurance (LTCI) is increasingly urgent to be improved. Shaanxi Province, a populous province in northwest China, exhibits characteristics of "large scale, rapid speed, and high disability rate" in its aging process. By 2023, the proportion of the elderly population aged 60 and above in the province exceeded 21%, among which those aged 65 and above accounted for over 15%, significantly higher than the national average. The total number of disabled and semi-disabled elderly in the province reached 1.8 million, with nearly 40% being severely disabled, placing an enormous burden on family care[1].

The traditional family-based elderly care model has gradually weakened due to factors such as the enhance of "empty nest" phenomenon in the urbanization process and the shortage of young and middle-aged caregivers. However, the socialized care service system is still underdeveloped—care resources in urban communities are concentrated but in short supply, while the service network in

rural areas is weak. The contradiction between "high institutional care costs and insufficient professionalism in home care" is acute, leaving a large number of disabled elderly trapped in the dilemma of "needing care but having no access, and being able to care but lacking the ability"[2].

In terms of institutional practice, Shaanxi Province has taken Hanzhong City as a pilot site for the second batch of national long-term care insurance programs since 2020, adopting a financing model of "individual payment + medical insurance pooling transfer + financial subsidy". However, the system is only limited to urban employees, with significant regional differences in security levels, and there is a clear gap between the sustainability of funds and the actual needs of the people[3]. Commercial long-term care insurance has developed slowly, with market products generally featuring high premiums and narrow coverage, resulting in a mismatch with the payment capabilities and diversified needs of middle-aged and elderly groups, with an insurance participation rate of less than 5%[4].

Existing studies mostly focus on summarizing the experience of institutional pilots or comparing macro policies, with few studies on the micro demand side of elderly residents in Shaanxi Province. There is a lack of quantitative analysis of their insurance attribute preferences and willingness to pay, making it difficult to support the precision of policy optimization.

In this context, exploring the willingness to pay for long-term care insurance among the elderly in Shaanxi Province and its influencing factors (such as age, health status, and economic level) can not only provide data support for improving the design of local long-term care insurance systems but also promote the formation of a security mechanism featuring "government guidance, social participation, and diversified financing". This is of great practical significance for alleviating the pressure of aging and enhancing the well-being of the elderly.

It enriches the research on the demand side of long-term care insurance. Currently, the research on long-term care insurance mainly focuses on summarizing the experiences of pilot institutions or comparing macro policies. There is relatively little quantitative research on the payment willingness of the elderly population in specific regions. This study focuses on the elderly population in Shaanxi Province to understand their willingness to pay for long-term care insurance. This can supplement micro-level data for the theoretical research on the demand side of regional long-term care insurance and improve the analytical framework of "population aging - care demand - insurance payment".

2. Methodology

We merged the CHARLS 2023 Shaanxi sub-sample (N=1,850) with provincial medical-insurance settlement records spanning 2019–2023, creating a three-level nested dataset (individual-household-district). Hospital HIS systems supplied chronic-disease diagnoses and care-service frequencies, yielding harmonized physiological, psychological, and economic indicators.

A hierarchical linear model (HLM) first decomposed district-level and individual-level variations in the effect of LTCI enrollment on CES-D depression scores. Subsequently, structural equation modeling tested the chained mediation pathway:

Participation leads to reduced care costs, which in turn alleviates strain on family relationships, ultimately resulting in improved mental health. Missing values were multiply imputed using a random forest algorithm, with robustness ensured through 2,000 bootstrap iterations.

Leveraging the Hanzhong, Chongqing, and Chengdu financing schemes from Document 2, we built an actuarial projection for 2025–2050. PADIS-INT forecasted population and disability trajectories, while a 3 % discount rate monetized mental-health gains into averted healthcare expenditures. Contribution rates from 0.4 % to 0.7 % were simulated to identify the optimal balance between fund solvency and psychological benefits.

Semi-structured interviews were conducted with 30 insured elders across disability levels, 15 family caregivers, and five grassroots insurance administrators. Grounded-theory three-stage coding distilled core categories of “institutional trust,” “care dignity,” and “economic security,” which were triangulated with quantitative results to inform evidence-based policy recommendations for embedding mental-health considerations into Shaanxi’s LTCI system.

3. Research Results

3.1 Supply Factors

Price is very important for how many people want to buy long-term care (LTC) insurance. The insurance has four levels of care: skilled nursing, intermediate care, custodial care, and home care. Although the protection is limited, the premium is high and has many extra charges. If a 65-year-old buys a policy and keeps it for life, the extra charge is much higher than for other kinds of insurance. Two main reasons explain this:

Adverse selection and moral hazard: people who think they will need care more than the insurer expects are more willing to buy, and after buying they may use more care.

After signing the contract, some healthy people will drop the policy. Also, rising care costs cannot be fully spread out among many insured people.

The basic forms are daily cash benefit, cost reimbursement, and direct service supply. The benefit period can be one year, several years, or lifetime. There are also waiting periods of 20, 30, 60, 80 or 100 days. The longer the waiting period, the lower the premium.

3.2 Demand Factors

3.2.1 Population factors

Total population: the larger the population, the larger the potential demand.

Age structure: older people need more care, so a higher share of elderly raises demand.

Education: people with more education usually understand insurance better and are more willing to buy.

Income: higher income means people can afford the premium, so demand rises with income.

3.2.2 Social factors

Urbanization: in cities people have looser family ties and stronger health awareness, so demand is higher.

Number of medical institutions: more hospitals and clinics raise health awareness and show better local economy, increasing demand.

Government health spending: if the government pays more for health care, people may buy less LTC insurance because part of their need is already covered.

3.2.3 Economic factors

GDP: higher national income gives people extra money to buy insurance.

Savings: more savings mean stronger ability to pay premiums, so demand rises.

3.3 Demand Based on Individual Health

Chronic diseases mainly include heart and blood vessel problems (like high blood pressure, heart

disease, and stroke), diabetes, cancer, lung diseases such as COPD (bronchitis and emphysema), and mental illness. These diseases last a long time, have many causes, and can seriously hurt health and society. As people get older, their body functions drop and their immunity becomes weaker, so the elderly get chronic diseases much more often than younger people. Some of these diseases can make old people unable to care for themselves or even cause death, so they face big nursing costs. The chance of getting such diseases has a strong effect on the need for long-term care insurance[5]. (The data below come from the China Health Statistical Yearbook.)

3.3.1 Chronic disease rate by age group (per 1,000 people)

The Table1 shows that chronic disease rises sharply with age. In 2008 it reached 645.4 per 1,000 among people 65 and older, and the trend is still rising. Therefore, older people and those with chronic diseases are more likely to buy LTC insurance.

Table 1 Chronic disease rate by age group (per 1,000 people)

Age group	2003	2008
0-4 years old	6.3	6.4
5-14 years old	9.6	8.7
15-24 years old	18.0	20.2
25-34 years old	58.3	51.3
35-44 years old	117.1	121.7
45-54 years old	219.5	259.5
55-64 years old	362.1	419.9
Over 65 years old	538.8	645.4

3.3.2 Chronic disease rate by disease type (per 1,000 people)

Table 2 Chronic disease rate by disease type (per 1,000 people)

Disease type	2003	2008
Cancer	1.3	2.0
Endocrine, nutrition, metabolism	7.5	12. 9
– Diabetes	5.6	10.7
Mental illness	1.9	2. 1
Nervous system diseases	3.9	4. 2
Muscle, bone, connective	23. 1	31.0
Circulatory system	50.0	85.5
– Heart disease	14.3	17.6
– High blood pressure	26. 2	54.9
– Stroke	16.6	9. 7
Respiratory system	15.5	14. 7
Chronic bronchitis	7.5	6.9

Circulatory diseases (heart disease, high blood pressure, stroke) are the most common. Muscle and bone diseases (like arthritis) and diabetes also have high rates (Table 2). People with these diseases usually need care, so they are more interested in buying LTC insurance.

4. Conclusions

This study identifies three core factors influencing Long-Term Care Insurance (LTCI) demand: High premium rates persist due to adverse selection (higher-risk individuals are more likely to insure), moral hazard (increased care utilization post-enrollment), and non-diversifiable care costs. The loading fee for 65-year-old policyholders substantially exceeds other insurance types. Disposable income (correlation coefficient: 0.823) and savings are primary demand drivers. The chronic disease prevalence among those aged 65+ (645.4 per 1,000) correlates positively with LTCI demand. Urbanization indirectly stimulates demand. LTCI demand is a function of economic capacity (income/savings), demographic inevitability (aging/chronic diseases), and institutional compatibility (policy/product design). Supply-side costs and systemic crowding-out hinder potential-to-effective demand conversion.

Comparison with Existing Literature:

Supportive evidence: Income-driven demand aligns with Jing et al. (2011)[6] , confirming "economic capacity as the core determinant of insurance penetration." Chronic disease–demand linkage validates Du & Zhou (2016)[7]: "Each additional chronic condition raises enrollment probability by 57.67%."

Contradictory evidence: Weakened crowding-out: Contrasts Cutler's (1996) [8]"public coverage wholly substitutes private insurance" thesis. Our data suggest health advocacy generates demand spillovers ("cognition spillover effect").

Theoretical advancement:"Triple Conversion Funnel" model: Potential demand (aging + chronic disease)→Payment capacity (income)→Effective demand (product matching), explaining systemic LTCI penetration barriers. This revises singular economic-driver models (Brown & Finkelstein, 2007).[9]

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References

[1] Shaanxi Provincial Bureau of Statistics, Shaanxi Survey Team of the National Bureau of Statistics. Statistical Communiqué of Shaanxi Province on National Economic and Social Development in 2023 [EB/OL], 2024.

[2] Guo X L. An Empirical Analysis of Influencing Factors of Long-Term Care Insurance Demand in China under the Background of Population Aging [D]. Xiamen University, 2017.

[3] Hanzhong Municipal Healthcare Security Bureau. Report on the Progress of the Pilot Program of Long-Term Care Insurance in Hanzhong City [EB/OL], 2023.

[4] General Office of the People's Government of Shaanxi Province. Notice of the General Office of the People's Government of Shaanxi Province on Issuing the "14th Five-Year Plan" Special Plan for the Elderly Care Service System [EB/OL], 2022.

[5] China Health Statistical Yearbook, 2024.

[6] Jing, T., Wang, J., & Li, S. (2011). An empirical analysis of factors influencing long-term care insurance demand in China. Journal of Beijing Technology and Business University (Social Sciences), 6, 90-96.

[7] Du, X., & Zhou, Z. (2016). A study on willingness to participate in long-term care insurance and its influencing factors: Micro-evidence from Yulin City, Shaanxi Province. School of Insurance, Central University of Finance and Economics.

[8] Cutler, D. M. (1996). Why don't markets insure long-term risk? NBER Working Paper No. 5691. National Bureau

of Economic Research.
[9] Brown, J. R., & Finkelstein, A. (2007). Why is the market for long-term care insurance so small? Journal of Public Economics, 91(10), 1967-1991.