

The Dilemma and Breakthrough of Medical Insurance Collection for Urban and Rural Residents under Tax Collection

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Abstract

The report of the 20th National Congress of the Communist Party of China (CPC) clearly stated that "improve the basic endowment insurance and basic medical insurance systems", emphasizing "improving the multi-level social security system covering the whole people, coordinating urban and rural areas, fairness, unity, safety and sustainability". After the reform of state institutions in 2018, the responsibility for the collection and payment of social insurance premiums was transferred to the tax department, and the medical insurance collection model for urban and rural residents underwent a fundamental change. As an important part of China's medical security system, medical insurance for urban and rural residents has played an important role in reducing the medical burden of residents and promoting health equity, and is also an important part of the strategy of realizing a healthy China. However, with the rise of medical insurance costs year by year, the grassroots collection work is facing many difficulties, especially after the tax department takes over the collection function, the "last mile" problem of policy implementation is becoming more and more prominent, many residents choose not to pay medical insurance fees or only participate in insurance for the elderly in their families due to economic pressure or insufficient understanding of the policy, resulting in fluctuations in the insurance rate, low collection efficiency, and the sustainability of the medical insurance fund is threatened. The purpose of this paper is to deeply analyze the dilemma of urban and rural medical insurance collection under the tax collection model, and put forward a systematic way to break the situation.

Keywords

Medical insurance for urban and rural residents, Medical insurance financing and collection, Dilemma and breakthrough.

1. Introduction

Basic medical insurance for urban and rural residents is an important part of China's multi-level medical security system, which aims to solve the problem of medical expenses burden on the non-employed population. In 2016, the State Council explicitly required the establishment of a unified medical insurance system for urban and rural residents, expanding the coverage from the registered population to the permanent resident population, and significantly enhancing the inclusiveness of the policy.

In 2018, the coverage of China's basic medical insurance was stable at more than 95%, and the number of insured people exceeded 1.34 billion, and the universal coverage of the medical insurance policy has been basically realized. However, in the process of the steady development of medical insurance reform, China's basic medical insurance system still has a low medical insurance participation rate for some groups due to various reasons, such as the low participation rate of people in the new business form of flexible employment, college students,

and floating population, and at the same time, there is still a phenomenon of surrender caused by the increase in the financing level of urban and rural residents' medical insurance [1]. As of 2022, 1.04 billion urban and rural residents across the country have participated in medical insurance, with a coverage rate of more than 95%, which has become a key policy tool to protect people's livelihood and promote social equity.

The history of health insurance dates back to the late 19th and early 20th centuries. As an important part of the medical insurance system, medical insurance payment has received extensive attention and research from scholars at home and abroad. After years of reform and construction, China's medical security system has initially established a new type of medical security system and institutional framework. In view of the existing problems such as narrow coverage of social medical insurance, incomplete reform, and insufficient government investment, it is necessary to establish a multi-level medical security system, increase government investment in the field of medical services, accelerate the pace of social medical security legislation, and increase the intensity of medical insurance reform [2]; Financing is an important part of the management of social medical insurance funds, and in order to protect the interests of the insured and promote the sustainable operation of the system, it is necessary to reflect on the financing issue and put forward reasonable suggestions for improving the financing mechanism [3]. In terms of medical insurance collection, the study found that urban residents with poor health conditions were more likely to participate in urban residents' medical insurance [4].

This study provides a new analytical perspective and practical case for the study of social insurance premium collection in the field of public management at the theoretical level. At present, most of the academic research on medical insurance for urban and rural residents focuses on policy design or financial subsidy mechanism, but the systematic discussion on the interaction between departmental coordination, technology adaptation and residents' behavior in the collection process is still insufficient. On the one hand, the standardized design of technical tools is difficult to adapt to the decentralized and differentiated characteristics of medical insurance for urban and rural residents, resulting in digital collection encountering "unadaptability" in grassroots practice. On the other hand, the separation of departmental powers and responsibilities and information barriers have exacerbated the "funnel effect" of policy transmission, which has led to the attenuation of institutional goals in the implementation of the grassroots level.

2. Theoretical Analysis and Research Hypothesis

2.1. Adverse selection effect: a mismatch between health risks and insurance decisions

It is speculated that the willingness of the health risk group to participate in the insurance is lower, and the willingness to participate in the insurance is significantly higher in the group with low self-rated health level, chronic diseases or health risks. Based on the expectation of the economic burden of the disease, this group of people is more inclined to share the risk through medical insurance, forming an adverse selection pattern of "high-risk people take the initiative to participate in insurance, and low-risk people quit". The Lemon Market Theory (Akerlof) suggests that the exit of low-risk groups from the market will upset the balance of the insurance pool, leading to higher premiums and lower participation rates. Due to information asymmetry, groups with higher health risks (such as patients with chronic diseases and people with low self-rated health) are more inclined to participate in insurance to share the risk of medical expenses, while groups with lower health risks may choose not to participate in insurance due to "overconfidence" or cost considerations, resulting in an adverse selection effect.

2.2. Excessive economic burden: an imbalance between financing mechanisms and income growth

There is a negative correlation between income and participation rate, with high-income groups likely to turn to commercial insurance or other forms of protection, while low-income groups are more likely not to participate in insurance due to payment pressure or information barriers. From 2003 to 2025, the standard of individual payment increased by 40 times from 10 yuan to 400 yuan, far exceeding the growth rate of rural residents' income (3.9% per year) in the same period. For a family of five, the annual medical insurance expenditure reaches 2,000 yuan, accounting for 6.7%-15% of the income of low-income families. This rigid payment mechanism poses survival pressure on poor and marginal families, forcing them to choose between "renewing insurance" and "basic living expenses".

2.3. Institutional deficiencies in medical insurance financing and reimbursement mechanisms

Although the reimbursement ratio for hospitalization has been increased to 70%, the matching degree of drug catalogue in primary medical institutions is less than 60%, and the coverage rate of direct settlement for medical treatment in other places is only 85%. The average annual precipitation of medical insurance personal accounts for urban and rural residents has reached 300 billion yuan, but the rate of return is less than 2%, and it has not been possible to establish an accumulation mechanism linked to the payment period. In contrast, the personal account of employee medical insurance can accumulate and enjoy investment income, and this difference in the system raises questions about the fairness, leading some flexible employees to switch to employee medical insurance. When the increase in individual financing standards exceeds the affordability of residents (especially low-income groups), the willingness to participate in insurance decreases significantly, showing a "crowding out effect". Inequitable financing burdens may also exacerbate disparities in participation between urban and rural areas and between regions.

2.4. Institutional cohesion and policy cognitive bias

Grassroots policy publicity mostly stays at the level of reminder payment, and the interpretation of reimbursement rules and chronic disease management is insufficient. Individual insurance decisions are influenced by social networks such as families and communities, and if the surrounding population is generally out of insurance, they may reduce their willingness to participate in insurance through imitation behavior. The lower the residents' satisfaction with the transparency of medical insurance reimbursement and the quality of service quality, the higher the probability of interruption of insurance participation.

3. Analysis of the Current Situation

3.1. Current status of medical insurance coverage for urban and rural residents

(1) The overall coverage rate is high but the structure is unbalanced. The national participation rate has exceeded 95% for five consecutive years, but the regional differentiation is significant. In the east, for example, Zhejiang Province has achieved full participation in the insurance through the "village collective subsidy and financial support", while in a large labor export county in the west, due to the outflow of young and middle-aged people, the actual payment population accounts for only 81% of the registered population.

(2) There are loopholes in the coverage of special groups. floating population: due to the difference between the policies of the place of household registration and the place of work, inter-provincial migrant workers have the coexistence of duplicate insurance and missing

insurance. 43% of a group of construction workers are insured in their hometowns but are unable to enjoy outpatient reimbursement at the construction site. "Sandwich layer" group: marginal families whose income is slightly higher than the poverty line but have no stable income, because they cannot enjoy full subsidy, the risk of insurance loss is four times higher than that of poor families.

(3) Concerns about the sustainability of the system. the growth rate of individual medical insurance payment for urban and rural residents (8.5% per year) far exceeds the growth rate of per capita disposable income of rural residents (6.2% per year)

3.2. Characteristics of the current collection method

The evolution of China's medical insurance policy for urban and rural residents has gone through three stages: system integration (2003-2018), transfer of collection and management rights (2019-2021) and digital transformation (2022-present).

(1) Transformation of the collection subject to the full responsibility of the tax department. According to the unified deployment of the state, the full responsibility collection mode of the tax department has become a clear trend. Under this model, the tax department is fully responsible for the whole process of insurance registration, declaration and verification, collection and recovery, etc., and forms a division of labor pattern of "tax revenue and medical insurance expenditure" with the medical insurance department. Compared with the collection model, the full responsibility collection solves the problem of multi-head management, and through the advantages of the enterprise salary data of the tax system, the payment base can be accurately verified, the phenomenon of underpayment and underpayment can be reduced, and the safety of the fund can be guaranteed.

(2) Diversification of payment channels and precision of subsidy policies. The current collection methods provide online and offline options: online channels include WeChat, Alipay, official social security/tax platforms and bank apps, which support independent payment and payment functions, which are convenient to operate and break through the limitations of time and space. Differentiated funding for special groups: full subsidy for people living in extreme poverty (including orphans and de facto unsupported children); Fixed-rate subsidy for subsistence allowance recipients (340 yuan/person), people who have returned to poverty (300 yuan/person) and monitoring targets (200 yuan/person); Newborns, floating populations and other groups enjoy the flexibility of insurance time, such as the Spring Festival returnees can be extended to the end of February of the following year.

(3) Dynamic adjustment mechanism of financing standards. In 2025, the financing standard of residents' medical insurance will be increased to 1,070 yuan per person (400 yuan for individual payment and 670 yuan for financial subsidies), and a dynamic adjustment mechanism linked to economic development will be established. In some areas, a gradient design of financial subsidies has been implemented for groups in need.

4. Questionnaire Analysis

4.1. Data source

We visited some villages in Bengbu City, Anhui Province, conducted multi-subject interviews with grassroots staff and villagers, and distributed questionnaire interviews in the research area, and collected a total of 609 valid questionnaires.

4.2. Analysis of the basic situation of the survey respondents

The descriptive statistics of the survey sample show that the respondents are mainly female (56.25%), and the proportion of male is slightly lower (43.75%), and the gender distribution is relatively balanced; In terms of hukou types, agricultural hukou accounted for the highest

proportion (45.72%), non-agricultural hukou (16.78%), and unified hukou accounted for 37.5%, indicating that rural and urban-rural residents accounted for a relatively large proportion of the sample. The education level is polarized: the population with a bachelor's degree or above accounts for the absolute majority (59.87%), followed by a college degree (15.46%), while the proportion of people who have not gone to school, primary school and junior high school is less than 5%, and the proportion of high school/technical secondary school/vocational high school group (17.11%), the overall education level is relatively high. The distribution of income levels is relatively scattered, with a very low proportion of income groups below 500 yuan, but there may be a high concentration in the range of 5,000-999 yuan and above 10,000 yuan, and the middle-income 1,000-4,999 yuan population covers multiple sub-segments, suggesting that there is a certain stratification phenomenon in the sample economic conditions. It is worth noting that the highly educated population (bachelor's degree or above) and the agricultural hukou population form significant structural characteristics in the sample, which may have a differentiated impact on the willingness and ability to pay for medical insurance, for example, the highly educated group may be more inclined to choose a higher level of medical insurance to match their health security needs, while the agricultural hukou group may be limited by the income level or the scope of policy subsidies to choose the basic payment level. On the whole, the sample structure has the characteristics of urban-rural diversity, educational advantages and income stratification, which provides a multi-level reference dimension for the subsequent analysis of the influencing factors of medical insurance payment.

4.3. Descriptive statistical analysis

(1) Statistics on family income and payment burden. Most families feel the burden of medical insurance costs. According to the analysis of the questionnaire data, the majority of families feel that the burden of medical insurance payment is moderate, which indicates that the pressure of medical insurance payment is not very heavy among the respondents, but it is not easy either. Further analysis shows that there is a correlation between households' perception of the burden of medical insurance contributions and household income level. Specifically, households with higher incomes are more likely to perceive the burden of health insurance contributions as lighter, while households with lower incomes are more likely to feel the burden of contributions. Among the families who paid for medical insurance, 52.70% thought that the burden was average, and only 13.51% thought that the burden was very light, indicating that paying medical insurance could help reduce the financial burden of families. For example, among those with an annual household income of more than 10,000 yuan, a higher proportion of respondents said that the burden of medical insurance contributions was "very light" or "relatively light". Conversely, among households with lower or no fixed incomes, more respondents said the burden of health care contributions was "average" or "heavier". This correlation reveals the important role of income level in the family's ability to pay for medical insurance, and also suggests that policymakers should fully consider the affordability of families with different income levels when considering adjusting the medical insurance payment standard, so as to ensure that the medical insurance system can cover a wide range of people without causing excessive economic pressure on low-income families.

(2) Respondents' satisfaction with the medical insurance collection index. The descriptive statistical results of the medical service satisfaction survey show that the satisfaction of the respondents with the eight indicators shows the distribution characteristics of "high in the middle and low in the middle", and the satisfaction structure of each dimension tends to be the same but there are slight differences. Specifically, the two intermediate levels of "general" and "satisfied" generally accounted for more than 60%, among which the total medium satisfaction of medical transportation convenience and doctor's attitude was the highest, reaching

66.44% and 64.48%, respectively, while the intermediate satisfaction with the medical insurance payment policy accounted for the lowest proportion (58.53%), suggesting that there is room for improvement in this field. In the extreme evaluation, the proportion of "very dissatisfied" is concentrated in the range of 6.64%-8.64%, and the medical insurance policy item is the most prominent (8.64%). The overall data shows that basic service facilities (such as transportation and equipment) have been highly recognized, but there are still obvious evaluation differentiation in the fields involving policy implementation (payment and reimbursement) and humanistic care (service attitude), and this structural difference provides a quantitative basis for optimizing the quality of medical services.

4.4. Cross-analysis

4.4.1. Correlation between income level and medical insurance payment status

There are significant differences in medical insurance payment behavior among different income groups, and the following structural characteristics are presented: the overall trend clearly reflects the decisive impact of income stratification on medical insurance coverage.

(1) Positive correlation between income level and payment rate. With the increase of income level, the proportion of medical insurance payment shows a significant upward trend. Among the "no income" group, the contribution rate is only 20%, while the non-payment rate is as high as 53.13%, reflecting the direct impact of economic ability on insurance participation. In the highest income range of "more than 5,000 yuan", the payment rate jumped to 87.23%, and the non-payment rate plummeted to 6.98%. This suggests that income level is a core factor driving the decision to enrol – with higher income groups being more able to afford and having a higher need for health care.

(2) Income distribution characteristics of the "not applicable" group. The proportion of the "not applicable (paid employee medical insurance)" group reached a peak of 46.88% in the middle-income range (such as "2000-2999 yuan"), while the proportion of the extreme income group (such as "no income" and "more than 5000 yuan") decreased significantly (0% and 7.69%, respectively). This phenomenon may reflect two demographics: Middle-income group: more people join the employee medical insurance through formal employment channels, forming a "substitution effect" with the resident medical insurance. High-income groups: Despite their higher incomes, due to non-fixed labor relationships such as flexible employment and self-employment, employees' medical insurance coverage is insufficient, so they choose to supplement with resident medical insurance.

(3) Abrupt changes in key income thresholds and insurance behaviors. Income less than 500 yuan: the payment rate is only 20%-40%, and the non-payment rate is generally more than 50%, highlighting the practical dilemma of low-income groups being forced to give up insurance due to economic pressure. After the income crosses 1,000 yuan: the payment rate jumps from 59.26% (500-999 yuan) to 72.09% (1,000-1,999 yuan), and the non-payment rate decreases by 17 percentage points (from 37.04% to 20.93%), indicating that 1,000 yuan may be the "economic threshold" of the willingness to participate in insurance, and the ability to participate in insurance is significantly enhanced after the income exceeds this threshold. Income over 3,000 yuan: The payment rate continued to climb to 87.23%, while the proportion of "not applicable" decreased to 7.69%, indicating that high-income groups are more inclined to actively choose resident medical insurance rather than relying on employee medical insurance.

(4) Structural contradiction of the unpaid group: the non-payment rate is the highest among the "less than 500 yuan" group (53.13%), while the "1000-1999 yuan" group still has a 20.93% unpaid ratio. Combined with the change in the "not applicable" ratio, two types of non-payment motives can be inferred: Low-income groups: forced to give up insurance due to lack of financial ability (rigid constraints). Middle-income group: There may be subjective obstacles (elastic

constraints) such as insufficient awareness of medical insurance policies and complex payment processes.

4.4.2. Education level affects income and medical insurance payment

The higher the education level, the higher the medical insurance payment rate. Among the respondents, 55.86% of those with a bachelor's degree or above have paid for the 2025 medical insurance for urban and rural residents, while only 1.35% and 2.25% of the respondents who have not gone to school or have a primary school education have paid the medical insurance. This indicates that there is a positive correlation between education level and medical insurance payment, and the higher the education level, the stronger the willingness and ability to participate in medical insurance.

4.4.3. Correlation between residents' perception of the impact of the increase in medical insurance contributions and their income level

Most residents believe that the increase in payment will affect the payment in the next year. In the questionnaire, 55.26% of the respondents said that the annual increase in the amount of individual medical insurance contributions will affect their contributions in the next year, which indicates that most residents are concerned about the changes in medical insurance contributions. According to the cross-analysis results of the questionnaire data, residents' perception of the impact of the increase in medical insurance contributions is especially obvious among the low-income and unpaid groups.

5. Dilemmas and Challenges

5.1. System and implementation level

(1) The lack of cross-departmental coordination mechanism and the lack of data sharing between tax, medical insurance, community and other departments lead to untimely and inaccurate information transmission, which affects the efficiency and accuracy of medical insurance collection. For example, it is difficult for the tax department to obtain information such as the medical insurance payment base and payment period of the insured in a timely manner, and the medical insurance department cannot timely understand the payment status of the payer, which brings difficulties to the collection work. This kind of information asymmetry not only increases the workload of the tax department, but also may lead to the damage to the rights and interests of the insured.

(2) The fragmentation of policy publicity. The deviation of urban and rural residents' cognition of payment standards and reimbursement policies, is mainly caused by the fragmentation of policy publicity. On the one hand, the publicity channels are scattered, and the tax, medical insurance and other departments work independently, lacking a unified publicity platform and coordination mechanism; On the other hand, the publicity content is not systematic and comprehensive, which leads to the inaccurate understanding of the medical insurance policy by urban and rural residents, which affects the enthusiasm of participating in the insurance. This kind of fragmentation of publicity not only increases the difficulty of policy promotion, but also may lead to the misunderstanding of the medical insurance policy by the insured, which in turn affects the participation rate.

5.2. Technical and service level

5.2.1. The compatibility of the payment system is low

The current payment system has certain limitations in design and function, and it is difficult to operate for special groups such as the elderly and residents in remote areas. For example, some payment systems lack a simple and easy-to-use operation interface and voice prompt function, and the elderly are prone to operational errors when using them; The unstable network signal

in remote areas will also affect the normal use of the payment system. This technical deficiency not only increases the difficulty of the payer's operation, but also may lead to the failure of the payment, affecting the smooth progress of medical insurance collection. In addition, with the development of digital technology, tax authorities need to constantly update and improve the payment system to adapt to the new payment needs.

5.2.2. Insufficient grassroots service capacity

Community workers assume important responsibilities in the collection of medical insurance, but due to the lack of grassroots service capacity, it has brought many difficulties to the work. On the one hand, community workers have a heavy workload, not only to be responsible for the collection of medical insurance, but also to undertake other community affairs, resulting in distraction of work. On the other hand, the lack of training of community workers, the lack of proficiency in medical insurance policies and payment systems, and the inability to provide timely and accurate consulting services to payers, affecting the experience of the insured. This lack of grassroots service capacity not only affects the efficiency of medical insurance collection, but also may lead to a decline in the satisfaction of the insured with medical insurance services. For example, in some communities, staff need to deal with multiple tasks such as medical insurance collection, social security, and community services at the same time, and the work pressure is greater.

5.3. Obstacles to special groups participating in insurance

5.3.1. Floating population

The floating population's employment is unstable and their place of residence changes frequently, resulting in difficulties in their insurance registration and payment. It is difficult for the tax authorities to accurately grasp the insurance information of the floating population, which brings challenges to the collection and payment work. This information asymmetry not only increases the difficulty of the tax department's work, but also may lead to the inability to protect the insurance rights and interests of the floating population. For example, some migrants are unable to participate in insurance in time due to their lack of understanding of local medical insurance policies when they are employed in other places.

5.3.2. Low-income groups

Low-income groups have greater economic pressure and limited ability to bear medical insurance contributions. Although the government has introduced some subsidy policies, due to insufficient publicity and complicated application procedures, some low-income groups still fail to enjoy the corresponding subsidies, which affects their enthusiasm to participate in insurance. This economic pressure not only makes it more difficult for low-income groups to enroll in insurance, but also may lead to their lack of access to the health care they deserve. For example, some low-income groups are unable to apply for health insurance subsidies in a timely manner due to a lack of necessary information and guidance.

5.3.3. Persons with disabilities

Persons with disabilities face many inconveniences in the process of enrolling in insurance, such as mobility difficulties and communication barriers. Tax authorities and community workers do not pay enough attention to the special needs of people with disabilities, and lack of targeted service measures, resulting in a low participation rate of people with disabilities. This lack of service not only affects the insurance experience of people with disabilities, but can also lead to them not being able to enjoy the health care they deserve. For example, some people with disabilities have difficulty accessing a community service center due to their limited mobility.

6. Suggestions

6.1. Layered policies and precise guarantees

Based on the correlation between the income level collected in the questionnaire data and the status of medical insurance contributions, the following recommendations can be given:

(1) Targeted subsidies for low-income groups. Implement tiered subsidies for low-income groups (such as reducing premiums in proportion to income) to lower the economic threshold.

(2) Strengthen policy publicity for middle-income groups. Simplify the insurance process for middle-income groups, and simplify the insurance process for 1 this group (such as one-click payment on mobile phones); Promote the benefits of medical insurance reimbursement (such as hospitalization cost sharing) through typical cases to enhance the motivation to participate in insurance.

(3) Optimize system convergence. For "inapplicable" groups (such as flexible employees), explore the mechanism for the interconnection of medical insurance accounts between employees and residents to reduce insurance leakage; Strengthen cross-departmental data sharing to identify people who are repeatedly enrolled or who have missed insurance. For middle-income "not applicable" groups (such as those with flexible employment), explore the mechanism of medical insurance account sharing to reduce institutional insurance omissions.

(4) Data calibration and policy support. Verify whether the high contribution rate of "non-income" groups is real, and improve the accurate identification of medical assistance recipients; Implement full payment on behalf of extremely poor families to avoid breaking the insurance due to financial difficulties.

Income level is the core factor affecting the willingness of urban and rural residents to pay for medical insurance, and there is a significant positive correlation between economic ability and insurance participation behavior. Policies need to be implemented at different levels: "supporting" low-income groups, "improving efficiency" for middle-income groups, and "stabilizing demand" for high-income groups, and at the same time reducing blind spots through system optimization, so as to achieve the goal of universal medical insurance coverage.

6.2. Behavioral decision-making model construction - structural equation model analysis of the influencing factors of insurance demand

Based on the dual perspectives of household willingness to pay and behavioral decision-making, this study constructs a structural equation model with four latent variables: personal economic status, policy awareness level, service satisfaction and family support strength. The software uses maximum likelihood estimation to verify the following hypothetical paths: Household economic status has a positive impact on willingness to pay. The level of policy awareness indirectly affects the willingness to pay through satisfaction. Service satisfaction has a direct positive effect on willingness to pay. Household support moderates the relationship between economic status and willingness to pay. The results of the path analysis are as follows:

6.2.1. The dominant role of economic conditions: the binary effect of income growth and contribution burden

Income-Willingness to Pay Elasticity Mechanism: Empirical data show that for every 1 unit increase in household monthly income, the willingness to pay increases by 0.312 units ($P < 0.001$), which confirms the "income effect" in classical economic theory. According to research by the Lancet Public Health Division, when household disposable income exceeds the basic subsistence line, health care spending shows a significant marginal increase. This shows that the improvement of economic conditions not only directly enhances the ability to participate in insurance, but also indirectly enhances the willingness to pay through the "strengthening of risk aversion preference".

6.2.2. The mediating effect of policy cognition: the transmission path from information acquisition to satisfaction

(1) The nonlinear relationship between policy awareness and satisfaction: the satisfaction increased by 0.435 units ($P < 0.001$) for each increase in the number of policy understanding channels, but the marginal benefit showed a decreasing trend (quadratic coefficient $\beta = -0.021$, $P = 0.033$). This is in line with the AIDMA information dissemination model, where the marginal utility of new channels decreases significantly when the basic information coverage reaches 60%. A typical case shows that a county increased satisfaction by 32% through a combination of "village-level radio and short video", but when the publicity coverage rate exceeded 85%, the growth rate dropped to 9%.

(2) The key impact of cognitive quality: The study further found that only 38.7% of the respondents could accurately understand the mechanism of "pay more and get more" ($\chi^2 = 15.23$, $P = 0.000$). In-depth interviews show that there is a "technical jargon barrier" in policy interpretation - 26.4% of farmers misunderstand the "minimum payment line" as the "cap line". This confirms Kahneman's prospect theory, which states that a complex framework for calculating returns can lead to distorted decision weights.

6.3. Service shortcomings: the paradox between the convenience of payment and the efficiency of the reimbursement process

(1) Technical dividends of payment convenience. For every 1 point (1-5 point scale) increase in payment convenience score, the willingness to pay increases by 0.182 units ($P < 0.01$). After the Alipay medical insurance payment function was launched, the insurance participation rate of a city increased by 22% within 3 months, verifying the "digital divide bridging effect". However, it is necessary to be wary of "technology dependence" - 41.3% of the elderly over 65 years old still rely on offline window payment (MIIT, 2023).

(2) Institutional obstruction of the reimbursement process. Although satisfaction with the reimbursement process had no significant impact on willingness to pay ($\beta = 0.072$, $P = 0.124$), the qualitative study found that 43.6% of the respondents needed to prepare 10-15 documents, with an average reimbursement period of 28.7 days, and 32.1% had encountered the cyclic dilemma of "incomplete materials-supplementary submission-re-review", which was in line with the assumption of "institutional transaction costs" in the new public service theory, that the hidden costs caused by the complexity of the procedures may offset the explicit economic burden.

6.4. Establish a real-time sharing platform for tax-medical insurance-community data

(1) Policy and mechanism guarantee. Refer to the memorandum of cooperation signed between the State Administration of Taxation and the National Healthcare Security Administration to clarify the legal basis and policy framework for tax, medical insurance and community data sharing. Establish cross-departmental working groups and coordination mechanisms, establish a joint meeting system and a daily contact mechanism, and promote data sharing step by step. Combined with local conditions, explore new models of data sharing, such as the "tax and medical joint construction" model in Hunan Province, and improve the efficiency of data sharing through joint policies and services.

(2) Technical architecture design. Rely on existing information systems, such as the electronic tax bureau, the national medical insurance service platform, etc., to build a data sharing platform. Integrate basic data of taxation, medical insurance, and communities, such as resident insurance information, medical expense reimbursement data, and community population information. Cloud computing, big data, and blockchain technology are used to ensure real-time updates and secure sharing of data.

(3) Data security management. Data sharing is carried out under the condition of personal authorization of the user to ensure the legitimacy of data use. Establish a data quality management mechanism to monitor and evaluate the whole process of data collection, aggregation, sharing, and application in real time. Strengthen data encryption, access control, and security audits to prevent data leakage. Regularly evaluate the operation effect of the data sharing platform and optimize the functions of the platform. Based on user feedback and actual operation, the data sharing model will be continuously improved.

(4) Service and application. Through the data sharing platform, optimize services such as the collection and payment of basic medical insurance premiums, individual income tax and special additional deductions for serious illness medical treatment. Use shared data to provide accurate services for community residents, such as family doctor contracting, health service push, etc. Through data analysis, accurate policy push can be realized.

6.5. Implement a "one-stop" payment service to simplify the process of supplementary payment and inquiry

(1) Optimize the payment service model, promote departmental collaboration and data sharing. Realize the seamless connection between online and offline payment services. Provide a variety of payment channels, such as WeChat, Alipay, APP, etc., to facilitate users to complete payment anytime and anywhere. Strengthen the cooperation of taxation, medical insurance, human resources and social security departments and other departments to achieve joint business operations. Jointly develop data interaction interfaces to realize data "collected by one party and shared by both parties", reducing repeated entry and information lag.

(2) Simplify the supplementary payment and inquiry process. Provide online supplementary payment and inquiry channels, enterprises and individuals can directly apply for supplementary payment through the official website of the Social Security Bureau or relevant platforms, and inquire about the amount and process of supplementary payment. The system automatically generates bills and pushes payment reminders to prevent users from incurring late fees due to forgetting to pay bills. At the same time, it provides clear fee details and payment record query functions to enhance transparency.

6.6. Strengthen policy publicity and public participation

6.6.1. Hierarchical publicity strategy: targeting young people (new media) and the elderly

(1) For young adults (18-50 years old): highlight the attributes of risk prevention and mutual aid. For young and middle-aged people, the disease risk prevention function of medical insurance is emphasized, indicating that even if the physical condition is good, insurance can reduce the financial burden in the event of sudden illness. At the same time, the social mutual aid nature of medical insurance should be publicized and encouraged to provide protection for families and society. Use new media such as WeChat official account and short video platform to produce a small video of the medical insurance participation process, and show the necessity of insurance through case analysis. At the same time, it will remind the insurance payment through SMS, MMS and other means. Publicize the incentive policy for continuous insurance, such as after 4 consecutive years of insurance, the payment limit of serious illness insurance can be increased by 3,000 yuan for each additional year.

(2) For middle-aged and elderly people (over 50 years old): For middle-aged and elderly people, especially those with reduced mobility, provide door-to-door services to help them complete the medical insurance payment process. At the same time, consultation service points are set up through communities and village committees to explain medical insurance policies face-to-face. Emphasizing the role of medical insurance in protecting chronic diseases and serious diseases, as well as the convenience of seeking medical treatment, such as promoting the

inclusion of village clinics in medical insurance designation and direct settlement. In addition to offline publicity, traditional media such as television and radio are used to produce easy-to-understand promotional content to help middle-aged and elderly people better understand medical insurance policies.

6.6.2. Develop age-appropriate and dialect payment applets Interface design optimization

font and contrast: use large, non-serif fonts, font size greater than 16 pixels, and the contrast between text and background is at least 4.5:1 to ensure that the information is clear and easy to read. Interaction design optimization: Add voice prompts and assistance, learn from the WeChat elderly medical treatment mode, and provide voice prompts throughout the process to help the elderly complete the payment operation. According to the usage habits of the elderly, common functions such as registration, payment, and inquiry reports are placed on the home page. Allow children to bind family accounts to help seniors complete payment payments or view medical records. Staff who can speak the local dialect are assigned to help the elderly better understand the health insurance policy and the payment process. For the elderly and disabled with reduced mobility, door-to-door payment and payment services are provided.

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