Analysis of Moral Risk in Medical Insurance

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Abstract. With the popularization of medical insurance, it appears that there has been the moral risk in the medical insurance market, which has attracted more and more attention. Starting from the relationship of doctors, patients and insurers, the article collects the Data from CHNS database, and analyses the moral risk between doctors and patients, patients and insurers through Eviews software. The result shows that there is moral risk between doctors and patients. As well as, the health insurance market also prove the existence of moral risk.

Introduction

In recent years, China's medical security system has been improving day by day, and gradually formed the coexistence of basic medical insurance, medical assistance, commercial insurance and Charity aid system. However, with the expansion of medical insurance coverage area and the improvement of guarantee level, medical expenditure has also achieved rapid growth.

The rise in medical expenditure is affected by a variety of factors, such as aging, environmental change, and medical technology. On the one hand, the improvement of people's consumption level and the progress of medical technology will lead to a reasonable increase in medical costs; on the other hand, because of moral risk in medical insurance market exists, the medical price will be lower than that before the insured person is insured, which will stimulate the needs of medical treatment, and even lead to unnecessary medical expenses. At the same time, the information between the insurance company and the insured is asymmetric. Under the condition that a part of the medical expenses is borne by the insurance company, the insured has the space to choose more doctors and prescribe more medicines. The medical staff are also familiar with the medical insurance market,. In order to increase the medical income or kickbacks, they will use excessive examination, expensive drugs and so on. It results in the lack of efficiency in the allocation of medical resources.

This article discusses the moral risk in the medical insurance market preliminary.

Theoretical Review

Moral risk means that after the signing of the contract, the party involved in the contract uses the advantage of information and fails to comply with the contract, thereby damaging the interests of the other party. When a contracting party does not fully assume the consequences of behavioral risk, it takes selfish actions to maximize its effectiveness and even acts against others.

Pauly M.V(1968) analyses the extent to which medical insurance suffers from individual moral risk. It suggests that even providing health care by the government reduces transaction costs, but at the same time brings other costs. Therefore. He believes that optimal healthcare policy should establish a new mechanism of the patient and the national co-payments and insurance deductibles, patients should pay certain costs according to the degree of moral risk .

Wangjinjin, Lizhen (2007) think that moral risk originated from opportunism problems in the social medical insurance field has been a long time, mainly for the excessive consumption of demanders and the induced demand of providers. Only by innovating the system of doctors, patients and insurance companies can solve this problem.

Husuyun(2000) analyses the characteristics of post moral risk, the moral risk and the use of
medical services and medical insurance price. She puts forward the concept of moral risk welfare loss, and thinks the ways of overcoming moral risk include the design of payment system.

Shiwenbi, Huangcheng (2005) think that moral risk is one of the major risks faced by medical insurance institutions, which leads to irrational growth of medical costs. The root of moral risk is asymmetric information, which includes excessive consumption of insured people and the induced demand of medical institutions. Through the economic analysis of these two phenomena, we put forward the ways of taking the medical institutions as the main and the insured as the auxiliary method to control the moral risk.

In the medical insurance market, the key is to analyze the relationship between doctors, patients and the Three Guarantees, and the main reason for the complicated relationship between the three is the asymmetry of information. Between the hospital and patients, because most patients do not have professional medical knowledge, the doctor can only follow doctor's advice and treatment, at this time, leading doctors may use the advantage of information and provide some unnecessary services to patients starting from the interests of the individual. They may raise the price of medical services (the use of expensive drugs instead of cheap drugs, etc.) so that they gain more benefits and damage the interests of patients. This risk is called moral risk. If the patient is insured, the insurance company will pay a due proportion of medical expenditure between the patient and the insurance company, in other words, the patient transfers part of the medical risk and loss to the insurance company and only respond a certain proportion of risk and loss. In this pay only a portion of the cost, you can enjoy the complete medical services. Patients may result in excessive consumption of medical service behavior, the insurance company will accordingly take more expenditure. This risk is also a moral risk.

Therefore, between the hospital and patients, it generally does not appear bad doctors to occupy the market, but with less technology acceptance. There may be the "moral risk". Between the insurance company and the patients, there may be "moral risk".

Data Analysis

According to the moral risk between doctors and patients, our hospital income links up with drug revenue. Driven by the interests, doctor will ask the patient to make unnecessary medical examination as the medical service provider, sometimes routine inspection can meet the needs of patients, but the doctors will induce patients to high-end equipment and professional self inspection. Excessive drug use, the indiscriminate collection of fees is also the means to increase their income. When the cost of medical services is lower than the price of drugs, medical collusion arises at the moment. Medical service providers make great waste of resources by making good and expensive medicines to gain economic benefits. These phenomena indicate that there is indeed a moral risk between doctors and patients, and this is not a detailed analysis.

In view of the moral risk between the insurance company and the patient, the article adopts the data analysis to judge whether there exists moral risk between the insurance company and the patient. Moral risk in the medical insurance market includes both ex-ante moral risk and ex-post moral risk. Afterwards, ex-post moral risk is the unreasonable increase of medical expenses caused through the maximum use of medical services by medical service demanders when they are ill. Ex-ante moral risk, namely the demand for medical services reduce the prevalence of disease control efforts, such as increased smoking and drinking on unhealthy behavior, and the physical exercise prevention motivation.

The data used in this paper are from CHNS(China Health and Nutrition Survey),it is a survey project conducted by the population research center of University of North Carolina-Chapel Hill, the National Institute of nutrition and food safety and the China CDC. Since 1989, CHNS has sampled nine provinces and 36 counties in China. So far, nine investigations have been conducted, they are as follows:1989, 1991, 1993, 1997, 2000, 2004, 2006, 2009 and 2011. This article uses data from 1989, 1991, 1993, 1997, 2000, 2004, and 2006.
Specifically, there is an analysis of whether there is moral risk between medical insurance and patients. About the ex-ante moral risk, using medical insurance and exercise CHNS in the medical insurance index, which in CHNS by "do you have medical insurance" show, if you have medical insurance, is assigned to 1, if there is no medical insurance, is set to 0. In CHNS "if you attended the related movement" (U145, U147, and other martial arts gymnastics, soccer, track and field U149 U151, badminton and other U153, other activities U155) represents exercise, O indicates not participate, 1 indicates participate. exercise=U145+U147+U149+U151+U153+U155; on the ex-post moral risk, the CHNS medical payment and medical insurance index, in CHNS "you to treat this disease or injury how much money" (M39), "the prevalence of how much money or how much money has been spent so far" (M30) In addition, in front of the said fees, to see this disease also spend extra money medical(M38)," the health care how much money "(M50) represents medical payment, medical payment=M39+M30+M38+M50, medical insurance is shown in CHNS by "do you have medical insurance?" 0 indicates no, 1 indicates yes. As the table 1 and table 2 show:

Table 1. Medical insurance and medical expenditure.

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>LABEL</th>
<th>NUM.91</th>
<th>NUM.93</th>
<th>NUM.97</th>
<th>NUM.00</th>
<th>NUM.04</th>
<th>NUM.06</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>DOES PERSON HAVE HEALTH INSURANCE?</td>
<td>14660</td>
<td>13816</td>
<td>14152</td>
<td>15131</td>
<td>12105</td>
<td>11741</td>
</tr>
<tr>
<td>M30</td>
<td>COST OF TREATMENT--FIRST FACILITY</td>
<td>1113</td>
<td>537</td>
<td>671</td>
<td>761</td>
<td>1453</td>
<td>1402</td>
</tr>
<tr>
<td>M38</td>
<td>AMT SPENT TREATING--MED CARE SOUGHT</td>
<td>975</td>
<td>498</td>
<td>598</td>
<td>655</td>
<td>1413</td>
<td>1362</td>
</tr>
<tr>
<td>M39</td>
<td>AMT SPENT TREATING--NO MED CARE SOUGHT</td>
<td>261</td>
<td>332</td>
<td>366</td>
<td>618</td>
<td>1314</td>
<td>697</td>
</tr>
<tr>
<td>M50</td>
<td>COST OF PREVENTIVE SERVICE</td>
<td>269</td>
<td>220</td>
<td>297</td>
<td>285</td>
<td>489</td>
<td>432</td>
</tr>
<tr>
<td>M30+M38+M39+M50</td>
<td>medical payment</td>
<td>2618</td>
<td>1587</td>
<td>1932</td>
<td>2319</td>
<td>4669</td>
<td>3893</td>
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</tbody>
</table>

Table 2. Medical insurance and exercise.

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>LABEL</th>
<th>NUM.9 7</th>
<th>NUM.0 0</th>
<th>NUM.0 4</th>
<th>NUM.0 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>DOES PERSON HAVE HEALTH INSURANCE?</td>
<td>14152</td>
<td>15131</td>
<td>12105</td>
<td>11741</td>
</tr>
<tr>
<td>U145</td>
<td>&gt;18--MARTIAL ARTS:PARTICIPATED?</td>
<td>9829</td>
<td>8382</td>
<td>9772</td>
<td>9787</td>
</tr>
<tr>
<td>U147</td>
<td>&gt;18--JOGGING:PARTICIPATED?</td>
<td>9820</td>
<td>8380</td>
<td>9775</td>
<td>9787</td>
</tr>
<tr>
<td>U149</td>
<td>&gt;18--DANCING:PARTICIPATED?</td>
<td>9848</td>
<td>8377</td>
<td>9772</td>
<td>9787</td>
</tr>
<tr>
<td>U151</td>
<td>&gt;18--BASKETBALL:PARTICIPATED?</td>
<td>9828</td>
<td>8375</td>
<td>9772</td>
<td>9787</td>
</tr>
<tr>
<td>U153</td>
<td>&gt;18--BADMINTON:PARTICIPATED?</td>
<td>9838</td>
<td>8371</td>
<td>9772</td>
<td>9787</td>
</tr>
<tr>
<td>U155</td>
<td>&gt;18--OTHER GAMES:PARTICIPATED?</td>
<td>9818</td>
<td>8373</td>
<td>9767</td>
<td>9787</td>
</tr>
<tr>
<td>U145+U147+U151+U153+U155</td>
<td>&gt;18--EXERCISE:PARTICIPATED?</td>
<td>58981</td>
<td>50258</td>
<td>58630</td>
<td>58722</td>
</tr>
</tbody>
</table>

data source: CHNS database
Through the Eviews software, we input dependency command and find the correlation between medical payment and medical insurance variables. We draw the index scatter diagram as follows:

![Figure 1. Medical insurance and medical expenditure.](image1)

![Figure 2. Medical insurance and exercise.](image2)

As we can see from the diagram, regarding the ex-ante moral risk, there is a negative correlation between medical payment and exercise. Regarding the ex-post moral risk, there is a positive correlation between medical payment and medical insurance.

Conclusions
From the above analysis, we can see that there is a moral risk between doctors and patients. In the relationship of the insurance company and the patients, due to the existence of a negative correlation between the medical payment and exercise, it shows that people who buy health insurance reduce the awareness of physical fitness and disease prevention, there may be some ex-ante moral risk. Because there is a certain positive correlation between medical payment and medical insurance, it shows that purchase health insurance would increase spending on Medicare, the health insurance market may also prove the existence of ex-post moral risk.

Recommendations

**The Moral Risk between Doctors and Patients.** First, we should strengthen government interference and supervision. Such as taking measures to limit the price of medical treatment, changing the existing management system of medicine, establishing a reasonable medical cost compensation mechanism. Second, we should promote doctors' professional ethics. Such as formulating professional ethics assessment methods and standards, conducting examination at any time, and establishing professional ethics examination paper and electronic records. Third, we can establish intermediary mechanism of medical insurance.

**The Moral Risk between the Insurance Company and the Patient.** For ex-ante moral risk, we should increase the popularization and propaganda of health knowledge. In this respect, international experience can also provide a reference for us. For example, the sickness funds provides free ski and skating courses for participants and provides reasonable dietary guidance. For ex-post moral risk, through the establishment of a suitable "personal account" operation mechanism, we should take some restraint measures. We can adopt an appropriate way to extend the channel, to expand the scope of personal payments, and to increase the proportion of individual payments into the co-ordination. In a word, the relative proportion of individual payment in personal account and the payment mode should be improved.

References


