

An Analysis of the Unpaid Insurance Benefits Problem in Japan*

Mahito Okura**

I . Introduction

Loss adjustment is an important aspect of the insurance contract. According to Williams et. al. (1998: 391), "The loss-adjustment process determines the level of compensation for an insured claim." Because of the loss-adjustment process, policyholders do not always receive the (full amount of) insurance benefits even if accidents occur. For example, there may be insurance fraud: policyholders should not receive insurance benefits if they deliberately have "accidents." Another example involves comparative negligence: the level of insurance benefits may be reduced if policyholders bear some responsibility for their accidents.

The main issue with the loss-adjustment process is "who" determines the level of compensation. Ideally, both the insurance company and the policyholder commit to determine the level of compensation.¹⁾ Any party

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** Associate professor at the Faculty of Economics, Nagasaki University, Japan.

that commits entirely to the loss-adjustment process might try to take advantage of the process to increase its benefits. Furthermore, this lowers the other party's benefits because loss adjustment is a constant-sum situation in which either party gains as long as the other party loses.

However, in reality, many policyholders have an insufficient understanding of their insurance contracts because of their complexity.²⁾ Thus, normally, loss adjustment is conducted solely by the insurance company. From the above discussion, confidence in insurance companies (and the insurance industry) is a prerequisite for a functioning loss- adjustment process.

The unpaid insurance benefits problem in Japan is a typical problem that reduces confidence in insurance companies. The unpaid insurance benefits problem can be defined as the problem where insurance companies do not pay the insurance benefits they are obliged to pay without good reason. That is, insurance companies take advantage of the loss-adjustment process to reduce their insurance benefits payments.

The purpose of this study is to provide an overview of the unpaid insurance benefits problem in Japan and to outline the main features of the relapse prevention plans submitted by insurance companies. Furthermore, given these explanations, a theoretical analysis is conducted to shed light on the effect of introducing new underwriters' salary schedules that abolish excessive incentives for getting new insurance contracts and introduce new incentives for maintaining in-force insurance contracts.

This article is organized as follows. In Section II, we provide an overview of the unpaid insurance benefits problem and classify this problem into two categories. In Section III, we outline the main features of

(okura@nagasaki-u.ac.jp)

1) Moreover, this improves if other intermediates such as underwriters and agents commit.

2) See McDowell (1989) and Okura (2005).

the relapse prevention plans submitted by insurance companies. In Section IV, we develop a model to analyze underwriters' salary schedules. Concluding remarks are presented in Section V.

II. The Unpaid Insurance Benefits Problem

First, we describe the scale of unpaid insurance benefits. In the life insurance industry, according to reports from December 2007, 37 life insurance companies had about 1.31 million unpaid contracts amounting to about 96.4 billion yen (about 838 million US dollars) in unpaid insurance benefits.³⁾ Outside the life insurance industry, according to reports from July 2007, 26 non-life insurance companies had about 496,000 unpaid contracts amounting to about 38.16 billion yen (about 332 million US dollars) in unpaid insurance benefits.⁴⁾

There are two main aspects of the unpaid insurance benefits problem.

The first is that insurance companies extended the declaration obligation on the insured to avoid paying insurance benefits. Hereafter, this is referred to as the "inappropriate unpaid pattern."

Second, insurance companies simply forgot to pay insurance benefits. Hereafter, this is referred to as the "forgetting payment pattern."

1. The Inappropriate Unpaid Pattern

This was committed by the Meiji Yasuda Life Insurance Company (Meiji -Yasuda).⁵⁾ The inappropriate unpaid pattern conducted by Meiji -Yasuda

³⁾ See Nihon Keizai Shinbun (December 8, 2007) (in Japanese).

⁴⁾ See Nihon Keizai Shinbun (July 3, 2007) (in Japanese).

⁵⁾ The Meiji Yasuda Life Insurance Company is one of the big four life insurance companies in Japan. According to its 2008 annual report (non-consolidated), the

was revealed in February 2005. Following this revelation, the Financial Services Agency (FSA), which supervises financial institutions operating in Japan, imposed an administrative penalty that prevented the company from trading (including selling) for two weeks. In addition, the FSA imposed a second administrative penalty that included indefinitely preventing new business in October 2008. ⁶⁾

Meiji - Yasuda's inappropriate unpaid pattern stemmed from abusing the declaration obligation on the insured. When insurance contracts were signed, underwriters advised individuals not to reveal their health conditions truthfully. The purpose of this advice was to ensure that insurance contract was not refused. Subsequently, when accidents occurred and policyholders claimed insurance benefits, the insurance companies refused to pay out because of declaration obligation violations. Clearly, in this case, individuals were cheated.

There are three main reasons why Meiji - Yasuda behaved dishonestly.

The first reason relates to Japanese underwriters' salary schedules, which incorporate excessive incentives for getting new insurance contracts. Although providing salary incentives is useful for improving underwriter morale, excessive incentives can bias underwriters' efforts. Under the inappropriate unpaid pattern, some underwriters tended to obtain new insurance contracts by acting dishonestly.

The second reason relates to Japan's economic situation. After the Japanese economic bubble burst in the 1990s, insurance companies were

company's total assets and premium income amount to about 251.9 billion US dollars and 26.47 billion US dollars, respectively. For details, see URL: <http://www.meijiyasuda.co.jp/regular/english/>.

⁶⁾ For details, see "FSA punishes Meiji Yasuda once again for unpaid claims" (Japan Times Online, October 29, 2005) (available at [http:// search. japantimes. co. jp/ cgi-bin/ n20051029a5.html](http://search.japantimes.co.jp/cgi-bin/n20051029a5.html)).

saddled with many negative spread contracts. To deal with this, Meiji - Yasuda tried to increase profits from mortality gains by lowering insurance benefits payments. Thus, Meiji - Yasuda reduced the number of insured who receive insurance benefits, regardless of the number of accidents.

The third reason relates to an organizational problem. Meiji - Yasuda was established following the merger of two life insurance companies in 2004, Meiji Life Insurance Company (Meiji) and Yasuda Life Insurance Company (Yasuda). Following this merger, there was no unified or clear management policy within the company. Furthermore, Meiji - Yasuda has no stockholders because it is a mutual company. Thus, because organizational governance is weaker than in a listed company, the inappropriate unpaid pattern is more difficult to avoid.

2. The Forgetting Payment Pattern

Following revelation of the inappropriate unpaid pattern operated by Meiji - Yasuda, all insurance companies investigated their past insurance benefits payments. Although this investigation did not reveal any inappropriate unpaid patterns such as that practiced by Meiji - Yasuda, it did find that almost all insurance companies had forgotten to pay insurance benefits. In particular, this forgetting payment pattern occurred mainly in automobile and medical insurance.

There are two main explanations for insurance companies forgetting to pay insurance benefits.

The first reason relates to companies' lack of knowledge about their own insurance contracts. The Japanese insurance market changed significantly during the last decade. In particular, the automobile insurance and medical and accident insurance markets underwent substantial deregulation in 1998 and 2001, respectively.⁷⁾ These deregulations stimulated insurance companies

to develop many different types of insurance contracts to respond to increased competitive pressure. As a result, insurance companies found it hard to manage their own insurance contracts and to educate the underwriters and agents they employed.

The second reason relates to the "claim principle." Under the claim principle, insurance companies only pay insurance benefits when policyholders make claims. Thus, if policyholders do not make claims because they do not understand their insurance contracts, insurance companies do not pay out benefits. The most serious consequence of the claim principle is the payment of surrender benefits when the contract lapses. In this case, the policyholder receives benefits after making a claim because of the claim principle. Although there is no reason for policyholders not to receive surrender benefits in the case of lapse, the result is the unintended occurrence of a forgetting payment pattern.

III. Relapse Prevention Plans

Following revelation of the unpaid insurance benefits problem, each insurance company submitted a relapse prevention plan. Although there are differences between these prevention plans, they share the following six features.

First, the loss-adjustment sections of contracts are to be strengthened. The simple reason for this is that the unpaid insurance benefits problem essentially arose because of weaknesses in loss-adjustment sections.

Second, underwriter salary schedules are to be reconsidered. Abolishing

7) Studies of the deregulation of the Japanese insurance market following the 1996 changes to insurance business law include those of Kwon and Skipper (1997), Hayakawa et al. (2000), Pope (2004), and Pope and Ma (2005).

excessive incentives for getting new insurance contracts and introducing new incentives for maintaining in-force insurance contracts are among the good examples.

Third, there is to be disclosure of information about three sources of profit, namely mortality gains (losses), interest gains (losses), and expense gains (losses), dating from fiscal year 2006. Before the unpaid insurance benefits problem was revealed, insurance companies refused to disclose this information on the grounds that it was equivalent to manufacturers' cost information. However, Meiji - Yasuda voluntarily chose to disclose its information on these three sources of profit because the company's profits from mortality gains were inappropriately obtained. Other insurance companies followed Meiji - Yasuda's lead and disclosed their information.

Fourth, insurance contracts are to be simplified and less diversified. In particular, insurance companies checked and, if necessary, unified their covenants to improve their understanding of their own insurance contracts.

Fifth, policyholders' claims procedures are to be addressed. All insurance companies contacted policyholders by letter to explain their claims procedures. This was done to deal with the claim principle.

Sixth, the auto-payback system for surrender benefits in the case of lapse is to be introduced. Under this system, surrender benefits are paid automatically by insurance companies, which should prevent the unpaid insurance benefits problem in the future.

IV. Theoretical Model

1. Notation and Definitions

In this section, we investigate the effect of introducing new underwriters'

salary schedules. In particular, following Okura (2002), who developed a multitask principal - agent model, we analyze why many (life) insurance companies abolished incentives for getting new insurance contracts.⁸⁾

Suppose that one insurance company and one underwriter exist in the economy. The underwriter faces the following two tasks:

- [1] getting new insurance contracts (hereafter, "task 1");
- [2] maintaining in-force insurance contracts (hereafter, "task 2").

Let e_1 and e_2 be the effort levels of task 1 and task 2, respectively. Assume that the insurance company cannot observe both effort levels, denoted by $e \equiv (e_1, e_2)$. The insurance company only observes signals such as the number of new insurance contracts and the number of lapses. The signals corresponding to e_1 and e_2 , which are represented by x_1 and x_2 , can be written as:

$$x_i = e_i + \epsilon_i \quad \text{for } i = 1, 2 \tag{1}$$

where $\epsilon \equiv (\epsilon_1, \epsilon_2) \sim N(0, \Sigma)$ is a random variable. Σ is the variance - covariance matrix represented by $\Sigma \equiv \begin{pmatrix} \sigma_{11} & \sigma_{12} \\ \sigma_{21} & \sigma_{22} \end{pmatrix}$. In addition, σ_{ij} ($i, j = 1, 2$) indicates the variance or covariance of the corresponding random variable.

Given the results of Holmstrom and Milgrom (1987), we can restrict our analysis to the linear wage schedule. Thus, suppose that the insurance company submits the following wage schedule w to the underwriter:

$$w = \alpha^T x + \beta = \alpha_1 x_1 + \alpha_2 x_2 + \beta \tag{2}$$

⁸⁾ For details of the multitask principal - agent model, see Holmstrom and Milgrom (1991).

where α_i represents the incentive intensity of task i and $\alpha \equiv \begin{pmatrix} \alpha_1 \\ \alpha_2 \end{pmatrix}$ and $x \equiv \begin{pmatrix} x_1 \\ x_2 \end{pmatrix}$. In addition, superscript T denotes the transpose matrix. β represents the fixed payment that is chosen regardless of the signals.

Assume that the insurance company is risk neutral. Then, its profit, which is denoted by Π , is:

$$\Pi = R(e) - w \tag{3}$$

where $R(e)$ represents the revenue of the insurance company and $R(\cdot)$ is assumed to be a continuous, twice differentiable, and concave function.

Because $E[x_i] = e_i$ (where $E[\cdot]$ is the expectations operator), the expected profit of the insurance company is:

$$E[\Pi] = E[R(e)] - \alpha_1 e_1 - \alpha_2 e_2 - \beta. \tag{4}$$

By contrast, the underwriter is assumed to be risk averse and have the following utility function: ⁹⁾

$$U = -\exp(-r(w - C(e))) \tag{5}$$

where r is the degree of absolute risk aversion and $C(e)$ represents the cost of expending effort, such that $C_{ij} \equiv \frac{\partial^2 C(e)}{\partial e_i \partial e_j} > 0$. $C_{12} = C_{21} > 0$ indicates that the higher is effort level of task 1, the higher is the marginal effort cost of task 2. In other words, tasks 1 and 2 are substitutes for each other.

Given equation (5), the certainty equivalent of the underwriter, which is denoted by CE is:

⁹⁾ In the utility function represented by equation (5), the degree of absolute risk aversion is constant.

$$CE = \alpha_1 e_1 + \alpha_2 e_2 + \beta - C(e) - \frac{r}{2} \alpha^T \Sigma \alpha \quad (6)$$

Given the above notation and definitions, the following two-stage game can be analyzed. In the first stage, the insurance company submits the wage schedule to the underwriter. In the second stage, after observing that wage schedule, the underwriter chooses both effort levels. The wage schedule that maximizes the expected profit of the insurance company can be derived by solving the following problem.

$$\underset{e}{Max} E[R(e)] - C(e) - \frac{r}{2} \alpha^T \Sigma \alpha \quad (7)$$

$$s.t. e_i \in \arg \max_{e_i} CE \quad (8)$$

Equation (7) represents the combined surplus of the insurance company and underwriter. Equation (8) expresses the condition on the underwriter's incentives to expend effort in performing both tasks. The wage schedule derived from equations (7) and (8) yields not only desirable effort levels but also desirable expected profit.

Thus, hereafter, this wage schedule is termed the "optimal wage schedule."

2. Deriving the Characteristics of the Incentive Intensities

From equation (8), we can easily derive the following first-order condition:

$$\alpha_i = C_i \quad (9)$$

where $C_i \equiv \frac{\partial C(e)}{\partial e_i}$.

Totally differentiating equation (9) and using Cramer's rule yields the following two derivatives:

$$\frac{de_1}{d\alpha_2} = \frac{C_{22}}{|C|} \quad (10)$$

$$\frac{de_2}{d\alpha_1} = -\frac{C_{12}}{|C|} \quad (11)$$

where $|C| \equiv C_{11}C_{22} - C_{12}^2 > 0$. $|C| > 0$ represents the second-order condition for equation (8).

The sign of equation (10) is strictly positive because $C_{22} > 0$. Thus, raising the incentive intensity of task 1 (raising α_1) increases the effort level of task 1 (e_1). By contrast, the sign of equation (11) is strictly negative because $C_{12} > 0$. Thus, raising the incentive intensity of task 1 (α_1) lowers the effort level of task 2 (e_2).

The above results can be explained as follows. Raising α_1 raises not only e_1 but also the marginal effort cost of task 2 because $C_{12} > 0$. Thus, the underwriter wants to lower e_2 . This result suggests that introducing greater incentive intensities into the wage schedule is not necessarily desirable. Indeed, an intermediate level of α may yield a greater total surplus than a high α .

3. Deriving the Optimal Wage Schedule

From equation (7), the first-order condition can be written as

$$R_i - C_i - r\alpha^T \Sigma \frac{\partial \alpha}{\partial e_i} = 0 \quad (12)$$

where $R_i \equiv \frac{\partial E[R(e)]}{\partial e_i}$ and $R \equiv \begin{pmatrix} R_1 \\ R_2 \end{pmatrix}$. In addition, substituting equation (9) into equation (12) yields:

$$\alpha = (I + rC\Sigma)^{-1}R \quad (13)$$

where I represents the identity matrix.

Equation (13) shows that α_1 is determined not only by correlated factors, such as C_{12} and σ_{12} , but also by the factors associated with task 2, such as C_{22} , σ_{22} , and R_2 . This result originates from the correlation between the two effort costs and the random variables. Thus, if there is no correlation between the two effort costs and the random variables, then α_i is given by:

$$\alpha_i = (1 + rC_{ii}\sigma_{ii})^{-1}R_i. \quad (14)$$

The α_i given by equation (14) is the same as that in the single-task principal - agent model.

4. Unobservable Signals

In actual insurance markets, submitting the wage schedule represented by equation (2) may be difficult. The number of lapses is only determined after the term of the insurance contract has expired. However, particularly in the life insurance market, many underwriters turnover before the term of the life insurance contract expires.¹⁰⁾ Thus, the number of lapses cannot be used to determine underwriters' salaries. In other words, the insurance

¹⁰⁾ According to the Nihon Keizai Shinbun (February 15, 2008) (in Japanese), the turnover rate among underwriters at Meiji - Yasuda after working 13 months in fiscal 2007 was 48 percent.

company cannot observe the signal for task 2 (x_2).

In this case, we can consider the situation of $\sigma_{12} = \sigma_{21} = 0$ and $\sigma_{22} \rightarrow \infty$. Substituting $\sigma_{12} = \sigma_{21} = 0$ into equation (13) and letting $\sigma_{22} \rightarrow \infty$ yields:

$$\alpha_1 = \frac{R_1 - R_2(C_{12}/C_{22})}{1 + r\sigma_{11}(C_{11} - (C_{12}^2/C_{22}))} \quad (15)$$

By contrast, $\alpha_2 = 0$ because the insurance company cannot observe x_2 .

Consider the implications of equation (15). The greater is the degree of substitutability between the two tasks, the smaller are the differentials between C_{12} and C_{22} and between R_1 and R_2 . Greater substitutability causes $R_1 - R_2(C_{12}/C_{22}) \rightarrow 0$. This implies that greater substitutability lowers α_1 . Consider the extreme case of perfectly substitutable tasks; that is, $C(e) = C(e_1 + e_2)$. In this case, $\alpha_1 = 0$ is optimal because $C_{12} = C_{22}$ and $R_1 = R_2$. Then, a fixed payment wage schedule is optimal even if the signal for task 1 (x_1) is observable.

V. Concluding Remarks

In this study, we explained the unpaid insurance benefits problem in Japan and outlined the main features of the relapse prevention plans submitted by insurance companies. Furthermore, given these explanations, a theoretical analysis was conducted to shed light on the effect of introducing new underwriters' salary schedules that abolish excessive incentives for getting new insurance contracts and introduce new incentives for maintaining in-force insurance contracts.

Insurance contracts perse have several characteristics. For example, insurance contracts incorporate invisible services and these demands are

implicit rather than explicit. These characteristics indicate that confidence in the insurance company is important in the selling and buying of insurance contracts. In Japan, this confidence was lost because of the unpaid insurance benefits problem. Hence, insurance companies had to solve this problem to restore confidence.

At the same time, policyholders' awareness of the details of their insurance contracts needs to be improved. A useful example of this is (re)confirmation of the insurance contract at the time the contract is signed and when claims are made. Increasing awareness is an effective way of ensuring that policyholders do not lose out on benefits because of the unpaid insurance benefits problem.

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Abstract

The unpaid insurance benefits problem in Japan is a typical problem that engenders a lack of confidence in insurance companies. The unpaid insurance benefits problem can be defined as the problem where insurance companies do not pay the insurance benefits they are obliged to pay without good reason. In other words, insurance companies take advantage of the loss-adjustment process to reduce their insurance benefits payments.

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※ Key Words : Unpaid Insurance Benefits, Confidence, Japan