www.business-systems-review.org **Business Systems Review** **ISSN: 2280-3866**
Volume 1 – Issue 1

Insurance as Credence Goods: On the Allocation of the Burden of Proof

Mahito Okura
Associate Professor, Faculty of Economics, Nagasaki University, Japan. e-mail: okura@nagasaki-u.ac.jp . Corresponding author

Yunho Lee
Professor, Department of Finance & Insurance, Daegu University, Korea. e-mail: inslab@daegu.ac.kr

received May 15, 2012 / revised June 29 / accepted July 21 / published online July 28, 2012
DOI: 10.7350/BSR.A05.2012 – URL: http://dx.medra.org/10.7350/BSR.A05.2012

ABSTRACT
The purpose of this study is to consider the following two questions by examining insurance products as credence goods. First, whether the insurance firm chooses the truth telling when it sells good-type or bad-type insurance product? Second, what is the effect of the allocation of the burden of proof between insurance firm and consumer?
First, there are two types of equilibrium in the model. The insurance firm always chooses the truth telling when it sells good-type insurance product in both types of equilibrium. The second type of the equilibrium realizes when the ratio of good-type insurance products is relatively low.
Second, what the insurance firm bears a greater burden of proof is not desirable because it lowers the probability of truth telling. This result is not consistent with the general opinion that the insurance firms should bear a greater burden of proof for protecting the consumers.

Keywords: Insurance, Game theory, Credence goods, Burden of proof, Asymmetric information.

1. INTRODUCTION

When the consumers purchase the insurance products, they may not be able to judge whether the insurance products they purchased is really suitable for their needs. Actually, they purchase the insurance products by relying on the insurance firms' integrities. However, many insurance products, especially complicated insurance products include high-leveled financial technologies, are more difficult for average consumers to understand. Thus, there is asymmetric information in relation to the insurance products between the insurance firms and consumers in the market.
This asymmetric information brings strong incentives for insurance firms' opportunistic activities (Villeneuve, 2000 and 2005; Andersson, 2001). For example, the insurance firms may offer unnecessary coverage to the consumers and they may not choose truth telling about the type of insurance products in order to receive more profits. In order to prevent such activities, governments seek to remedy the disadvantages from the asymmetric information by monitoring and regulating insurance firms' marketing activities. However, in many countries, distribution channels are deregulated and the business scope of insurance firms is expanded in recent years.

These trends are likely to contribute to achieve more efficient insurance market, but they are also likely to lead the lemon problem for consumers in the insurance market.

To protect consumers from the lemon problem, transaction rules with definite rights and duties of the contracting parties have to be established. Although the rules are well prescribed in the insurance business law, it might not be sufficient to protect consumers who bought complicated insurance products such as variable life insurance products where the final amount of insurance payment depends on the investment returns. In this case, if the investment returns are poor, consumers cannot obtain a sufficient insurance payment. Then, consumers sometimes argue that the insurance firm has a responsibility to compensate them for their lower insurance payment because the insurance firm did not fulfill its obligation to explain the insurance products before sale.

However, it is not easy for consumers to obtain compensation because they bear the burden of proof that the insurance firm misrepresented its insurance product. Moreover, many kinds of insurance firms' sales explanations would be fully or partially unobservable for a third party including the court. Thus, the finding the solutions of the problem occurred by the asymmetric information in relation to the insurance products is not easy and this study mainly focuses on considering this problem because there are a few economic studies regarding the burden of proof in the insurance market. [1]

With respect to these problems, discussions of the credence goods give this study some of the ideas. Generally, the credence goods have the characteristic that the consumers cannot judge the type of the goods before they purchase and then they finally know the type of the goods after they purchase. The same is true of the insurance products. Insurance consumers cannot get and understand enough information about the insurance products before they purchase and they generally know the utility of the insurance products when the accident occurs or the insurance period is expired. Sellers act as experts determining the customers' requirement in this kind of a market. Therefore, the most of studies about the credence goods focus on fraudulent sellers or experts. Darby and Karni (1973), Wolinsky (1993,1995), Emons (1995, 1997) discuss how market conditions and technological factors affect the amount of fraud. Pitchik and Schotter(1987) show that the expert randomizes between either explanations truthfully or not. Tayler(1995) adopts a framework where he can analyze inefficiencies arising in the level of maintenance of the durable goods. Pesendorfer and Wolinskky(2003) analyze potential inefficiencies in the amount of effort provided by an expert to makes an diagnosis. But previous papers have assumed that fraud is costless and the only source of inefficiency is the cost of getting a second opinion. Then lying is not inefficient. By contrast Alger and Salanie(2006) allow for fraud costs and show conditions leading to equilibrium overtreatment. But it is difficult to introduce intact ideas into our framework, because our main concern is how the allocation of burden of proof and the accountability affect on seller and consumers behavior, not the fraudulent behavior of experts.

The purpose of this study is to consider the following two questions by examining insurance products as credence goods. First, whether the insurance firm chooses the truth telling when it sells good-type or bad-type insurance product? Second, what is the effect of the allocation of the burden of proof between insurance firm and consumer?

[1] There are many economic studies on the allocation of burden of proof for accident prevention. For example, see Sanchirico (1997) and Hay and Spier (1997).

This study is organized as follows. Section 2 builds the model in which the asymmetric information in relation to the type of insurance products exists. The equilibrium is derived in Section 3. Section 4 considers how the allocation of the burden of proof affects the equilibrium. Section 5 provides some concluding remarks.

2. THE MODEL

Assume that there are one insurance firm and one consumer in the market. Also suppose that there are good and bad insurance products in this market. Although the insurance firm can distinguish between both types of insurance products, the consumer cannot because of asymmetric information. In this market, the consumer only knows the ratio of good and bad insurance products. Denote the ratio of good (G) and bad (B) insurance products as π and $1-\pi$, respectively. In this situation, both the insurance firm and consumer face the following four-stage game.

In the first stage, the insurance firm announces the type of insurance product to the consumer before sale. Because the consumer cannot distinguish between the two types of insurance products, the insurance firm can mimic the type. Thus, the insurance firm can announce B-type (G-type) to the consumer, despite actually selling G-type (B-type) insurance product. For example, there is a consumer who wants to prepare full coverage, but does not have sufficient knowledge about insurance products. In this case, insurance product without (with) deductible can be interpreted as G-type (B-type) insurance product. Let e_i ($i \in \{G, B\}$) be the selling costs and assume that $0 < e_G < e_B < \infty$. This inequality indicates that selling the bad insurance product is more difficult and costly than selling the good insurance product. Also assume that selling costs only depend on what the insurance firm announces because selling costs mainly depend on the amount of the explanation about the insurance product. Thus, in the model, the insurance firm has to pay e_B even if the real insurance product is G-type.

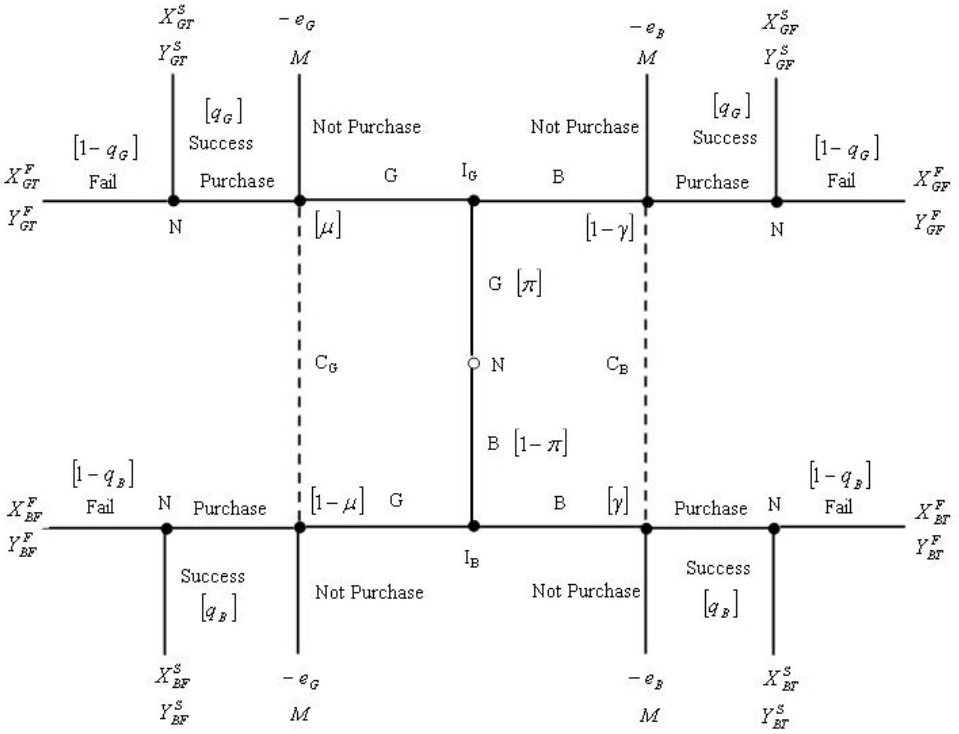
In the second stage, the consumer chooses whether to purchase the insurance product. If the consumer chooses to purchase, the insurance firm invests a part of the insurance premium and the game proceeds to the third stage. In contrast, if the consumer chooses not to purchase, the game ends at this stage. In this case, the consumer's payoff is $M > 0$, while the insurance firm's payoff is $-e_i$. This means the consumer can receive the amount $M > 0$ by investing in a no-risk asset (such as a time deposit) that represents constant (expected) payoff without any insurance products, while the insurance firm only ends up paying the selling costs.

In the third stage, nature decides whether the investment is a success or a failure. Here, q_i denotes the probability of a successful investment when the insurance firm sells *i*-type insurance product and assumes that $0 < q_B < q_G < 1$. If the investment succeeds, the consumer receives the revenue and the game ends. In contrast, if the investment fails, the game proceeds to the fourth stage.

In the fourth stage, both the insurance firm and the consumer take court action to allocate the responsibility for the failure of the investment. Assume that the insurance firm's winning probability with truth telling is higher than with false telling in the first stage. If the insurance firm loses, they have to pay compensation to the consumer. Here, X_{ij}^k and Y_{ij}^k (where $j \in \{T, F\}$ and $k \in \{S, F\}$) defines the insurance firm's and consumer's payoff when the insurance firm sells *i*-type insurance product and chooses truth telling ($j = T$) or false telling ($j = F$) with

investment success ($k = S$) or failure ($k = F$).
Using the game situation described, we construct the game tree in Figure 1.

Figure 1. The Game Tree.



In Figure 1, N, I_i and C_i are the nodes of nature, the insurance firm, and the consumer when i-type insurance product is sold. μ and γ are the probabilities that the consumer believes the insurance firm chooses truth telling when the insurance firm announces G-type and B-type, respectively.
The expected payoffs for the insurance firm before subtracting the selling costs and the consumer are represented by X_{ij} and Y_{ij}, respectively. We can then calculate X_{ij} and Y_{ij} as follows:

$$X_{ij} = q_i X_{ij}^{S} + (1 - q_i) X_{ij}^{F} \tag{1}$$

$$Y_{ij} = q_i Y_{ij}^{S} + (1 - q_i) Y_{ij}^{F} . \tag{2}$$

In addition, we set three assumptions: $X_{GT} > X_{GF}$, $X_{BF} > X_{BT}$ and $Y_{iT} > M > Y_{iF}$. The first assumption is that the insurance firm that chooses truth telling can receive a higher expected payoff than false telling when the insurance firm sells G-type insurance product and the consumer always purchases it. The second assumption is that the insurance firm that chooses false telling can receive a higher expected payoff than truth telling when the insurance firm sells B-type insurance product and the consumer always purchases it. The third assumption is that the consumer wants to purchase the insurance product when the insurance firm chooses truth telling regardless of the type of insurance product and vice versa.

3. DERIVING THE EQUILIBRIUM

Because this game is categorized in dynamic game with imperfect information, the perfect Bayesian equilibrium (PBE) is the most suitable equilibrium concept. To start with, it is easy to verify that the insurance firm always chooses truth telling when it sells G-type insurance product because $e_G < e_B$ and $X_{GT} > X_{GF}$. Next, consider the case where the insurance firm announces G-type. In this case, there are two possibilities: namely, truth telling and false telling. Here, r denotes the probability of the consumer purchasing the insurance product when the insurance firm announces G-type. If the consumer purchases this insurance product, its expected payoff is $\mu Y_{GT} + (1-\mu)Y_{BF}$. In contrast, if the consumer does not purchase, its payoff is M. Then:

$$\begin{aligned} r &= 1 \quad \text{if} \quad \mu \geq \frac{M - Y_{BF}}{Y_{GT} - Y_{BF}}, \\ r &= 0 \quad \text{if} \quad \mu \leq \frac{M - Y_{BF}}{Y_{GT} - Y_{BF}}, \\ r &\in [0,1] \quad \text{if} \quad \mu = \frac{M - Y_{BF}}{Y_{GT} - Y_{BF}}. \end{aligned} \tag{3}$$

(Case 1) $\mu \geq \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$

In this case, the consumer always purchases the insurance product when the insurance firm announces G-type. Given that consumer's response, we consider the insurance firm's decision when it sells B-type insurance product. Here, s denotes the probability of choosing truth telling when the insurance firm sells B-type insurance product. If the insurance firm chooses truth telling, its expected payoff is X_{BT}. In contrast, if the insurance firm chooses false telling, its expected payoff is X_{BF}. Because $X_{BF} > X_{BT}$, the insurance firm chooses $s = 0$. Thus, the insurance firm chooses truth telling only when it sells G-type insurance product. In order to maintain belief consistency, $\mu = \pi$ must be satisfied. Also, we can confirm that any γ becomes the equilibrium both even in the case of surely purchasing and not purchasing because $X_{GT} > X_{GF} > -e_B$ and $X_{BF} > X_{BT} > -e_B$.[2]

Thus, if $\pi \geq \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$ is satisfied, $\left\{ r = 1, s = 0, \mu \geq \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}, \forall \gamma \right\}$ becomes the PBE.

(Case 2) $\mu \leq \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$

In this case, the consumer never purchases the insurance product when the insurance firm announces G-type. Then the insurance firm chooses $s = 1$. In order to maintain belief consistency,

[2] In this case, information set on the belief γ is off equilibrium path. In this case, this information set is not restricted by the belief consistency and just compute the belief that satisfies both G-type and B-type insurance firms announce G-type. In details, for example, see Section 4.2 in Gibbons (1992).

$\mu = 1$ must be satisfied. However, $\mu = 1$ contradicts $\mu \le \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$. Thus, there is no PBE.

(Case 3) $\mu = \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$

In this case, the consumer is indifferent to purchase the insurance product when the insurance firm announces G-type. If the insurance firm chooses truth telling, its expected payoff is X_{BT}. In contrast, if the insurance firm chooses false telling, its expected payoff is $rX_{BF} - (1-r)e_G$. Thus, the response function can be written as:

$$\begin{aligned} s &= 1 \quad \text{if} \quad X_{BT} \ge rX_{BF} - (1-r)e_G \\ s &= 0 \quad \text{if} \quad X_{BT} \le rX_{BF} - (1-r)e_G \\ s &\in [0,1] \quad \text{if} \quad X_{BT} = rX_{BF} - (1-r)e_G . \end{aligned} \tag{4}$$

(Case 3–1)

In this case, the insurance firm always chooses truth telling. In order to maintain belief consistency, $\mu = 1$ must be satisfied. However, $\mu = 1$ contradicts $\mu = \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$. Thus, there is no PBE.

(Case 3–2)

In this case, the insurance firm never chooses truth telling. In order to maintain belief consistency, $\mu = \pi$ must be satisfied. Also, we can confirm that any γ becomes the equilibrium in the same manner of Case 1.

Thus, if $\pi = \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$ is satisfied, $\left\{ \forall r, s = 0, \mu = \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}, \forall \gamma \right\}$ becomes the PBE. It is easy to see that this equilibrium is a special case of Case 1.

(Case 3–3)

In this case, the consumer's response is certain as $r = \dfrac{X_{BT} + e_G}{X_{BF} + e_G}$. In order to know whether the PBE exists, we must check the belief consistency. Using Bayes' rule, the belief can be written as:

$$\mu = \frac{\pi}{\pi + (1-\pi)(1-s)} = \frac{M - Y_{BF}}{Y_{GT} - Y_{BF}} . \tag{5}$$

From the equation (5), we show:

$$s = \frac{M - Y_{BF} - \pi(Y_{GT} - Y_{BF})}{(1-\pi)(M - Y_{BF})}. \tag{6}$$

Because $s \geq 0$, the following equation must be satisfied.[3]

$$M - Y_{BF} - \pi(Y_{GT} - Y_{BF}) \geq 0. \tag{7}$$

Then,

$$\pi \leq \frac{M - Y_{BF}}{Y_{GT} - Y_{BF}}. \tag{8}$$

In this case, in order to satisfies the belief consistency of γ, $\gamma = 1$ must be satisfied because consumer surely finds the insurance firm must be B-type when the insurance firm announces B-type.

Thus, if $\pi \leq \frac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$ is satisfied,

$\left\{ r = \frac{X_{BT} + e_G}{X_{BF} + e_G}, s = \frac{M - Y_{BF} - \pi(Y_{GT} - Y_{BF})}{(1-\pi)(M - Y_{BF})}, \mu = \frac{M - Y_{BF}}{Y_{GT} - Y_{BF}}, \gamma = 1 \right\}$ becomes the PBE.

Roughly speaking, there are two types of equilibrium in this game (Case 1 and Case 3-3). Which of these equilibriums is realized depends on the ratio of good and bad insurance products denoted by π.

Case 1 depicts the first type of equilibrium. This equilibrium is realized when π is relatively high. This equilibrium implies "the insurance firm never chooses truth telling when it sells B-type insurance product": that is, the insurance firm announces the true type only when it sells G-type insurance product. The consumer always purchases the insurance product regardless of the announcement.

Case 3–3 depicts the second type of equilibrium. This equilibrium is realized when π is relatively low. This equilibrium implies "the insurance firm randomly chooses truth telling when it sells B-type insurance product": that is, the insurance firm always announces the true type when it sells G-type insurance product and it randomly announces the true type when it sells B-type insurance product. The consumer also randomly chooses whether it purchases insurance product when the insurance firm announces G-type.

4. ALLOCATION OF COURT ACTION COSTS.

Court action brings higher costs for both the insurance firm and the consumer. Thus, the allocation of court action costs is one of the factors that characterize the equilibrium. In this section, we consider the effect of the allocation of court action costs.

Suppose that the court action costs takes place in the fourth stage. For simplicity, the amount of court action costs is constant regardless of any previous decisions. Here, $\theta \in [0,1]$ denotes the ratio that the insurance firm burdens the court action costs. Thus, the insurance firm has the full

[3] $s \leq 1$ is always satisfied because $M - Y_{BF} - \pi(Y_{GT} - Y_{BF}) \leq (1-\pi)(M - Y_{BF}) \Rightarrow M \leq Y_{GT}$.

burden of proof when $\theta = 1$, while the consumer has the full burden of proof when $\theta = 0$. Using the results in the previous section, the degree of θ affects the following variables.

$$\pi^* \equiv \frac{M - Y_{BF}}{Y_{GT} - Y_{BF}}, \tag{9}$$

$$r^* \equiv \frac{X_{BT} + e_G}{X_{BF} + e_G}, \tag{10}$$

$$s^* \equiv \frac{M - Y_{BF} - \pi(Y_{GT} - Y_{BF})}{(1-\pi)(M - Y_{BF})}. \tag{11}$$

These variables contain X_{BF}, X_{BT}, Y_{BF}, and Y_{GT}.[4] Thus, we have to investigate the changes in each of the four variables when θ changes. To start with, because court action costs are only realized when the investment fails in the third stage, X_{ij}^F and Y_{ij}^F are a function of the amount of court action costs. We can then compute the following derivatives, X_{ij}' and Y_{ij}'.

$$X_{ij}' \equiv \frac{\partial X_{ij}}{\partial \theta} = (1 - q_i)\frac{\partial X_{ij}^F}{\partial \theta}, \tag{12}$$

$$Y_{ij}' \equiv \frac{\partial Y_{ij}}{\partial \theta} = (1 - q_i)\frac{\partial Y_{ij}^F}{\partial \theta}. \tag{13}$$

It is easy to understand that $X_{ij}' < 0$ because $\frac{\partial X_{ij}^F}{\partial \theta} < 0$ and $Y_{ij}' > 0$ because $\frac{\partial Y_{ij}^F}{\partial \theta} > 0$. Because the amount of court action costs is constant regardless of any decisions, then $X_{BF}' = X_{BT}'$ and $Y_{BF}' = Y_{BT}'$. In addition, the probability of the insurance firm's winning with truth telling is higher than with false telling. Thus, we can derive the following relationship.

$$Y_{Bj}' = Y_{Gj}' \Rightarrow Y_{BF}' = Y_{BT}' > Y_{GT}' \Rightarrow Y_{BF}' > Y_{GT}'. \tag{14}$$

Partially differentiating π^*, r^*, and s^* with respect to θ,

$$\frac{\partial \pi^*}{\partial \theta} = -\frac{Y_{GT}'(M - Y_{BF}) + Y_{BF}'(Y_{GT} - M)}{(Y_{GT} - Y_{BF})^2} < 0 \tag{15}$$

$$\frac{\partial r^*}{\partial \theta} = \frac{X_{BT}'(X_{BF} - X_{BT})}{(X_{BF} + e_G)^2} < 0 \tag{16}$$

$$\frac{\partial s^*}{\partial \theta} = -\frac{\pi(1-\pi)\{Y_{GT}'(M - Y_{BF}) + Y_{BF}'(Y_{GT} - M)\}}{\{(1-\pi)(M - Y_{BF})\}^2} < 0. \tag{17}$$

We can explain these three derivatives (15), (16), and (17) as follows. When θ becomes higher,

[4] M and e_G are also containing factors. However, these variables do not relate to the amount of court action costs.

both X_{BT} and X_{BF} become lower. Although $X_{BT}' = X_{BF}'$, the actual effect from changing θ differs. If the insurance firm chooses truth telling, the consumer always purchases the insurance product. In this case, the actual effect from changing θ is X_{BT}'. In contrast, if the insurance firm chooses false telling, the probability that the consumer purchases the insurance product is $r^* \in (0,1)$. In this case, the actual effect from changing θ is less than $X_{BF}' = X_{BT}'$. Thus, the advantage of choosing truth telling becomes lower when θ becomes higher. In response to the lowering of the probability of truth telling, the probability of deriving the equilibrium realizing $r = 1$ becomes lower and the consumer has a lower probability of purchasing the insurance product when the insurance firm announces G-type in the case of $\pi \le \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$.

Furthermore, an increase in θ have the following two effects. First effect is represented by $\dfrac{\partial \pi^*}{\partial \theta} < 0$. It means that when θ becomes higher, the probability of realizing the equilibrium $\{r = 1, s = 0\}$ becomes higher and the probability of realizing the equilibrium $\left\{ r = \dfrac{X_{BT} + e_G}{X_{BF} + e_G}, s = \dfrac{M - Y_{BF} - \pi(Y_{GT} - Y_{BF})}{(1-\pi)(M - Y_{BF})} \right\}$ becomes lower. This effect lowers the probability that the insurance firm chooses truth telling when it sells B-type insurance products. Second effect is represented by $\dfrac{\partial r^*}{\partial \theta} < 0$ and $\dfrac{\partial s^*}{\partial \theta} < 0$. They mean that when θ becomes higher, both the probability that the consumer purchases insurance product when the insurance firm announces B-type and the probability that the insurance firm chooses truth telling when it sells B-type insurance product becomes lower in the case of $\pi \le \dfrac{M - Y_{BF}}{Y_{GT} - Y_{BF}}$. This effect also lowers the probability that the insurance firm chooses truth telling when it sells B-type insurance product.

Thus, we conclude that what the insurance firm bears a greater burden of proof is not desirable because it lowers the probability of truth telling. This result is not consistent with the general opinion that the insurance firms should bear a greater burden of proof for protecting the consumers.

5. CONCLUSIONS

This study investigated the situation in which there is asymmetric information in relation to the insurance products and considered the following two questions. First, whether the insurance firm chooses the truth telling when it sells good-type or bad-type insurance product? Second, what is the effect of the allocation of the burden of proof between insurance firm and consumer? The main results of this study are as follows.

First, there are two types of equilibrium in the model. The insurance firm always chooses the truth telling when it sells good-type insurance product in both types of equilibrium. The first type of equilibrium realizes when the ratio of the good-type insurance products is relatively high. In this equilibrium, insurance firm never chooses truth telling when it sells bad-type insurance product but the consumer always purchases insurance product regardless of insurance firm's announcement. The second type of the equilibrium realizes when the ratio of good-type insurance products is relatively low. In this equilibrium, insurance firm randomly chooses truth

telling when it sells bad-type insurance product and the consumer also randomly chooses whether it purchases the insurance product when the insurance firm announces good-type.
Second, what the insurance firm bears a greater burden of proof is not desirable because it lowers the probability of truth telling. This result is not consistent with the general opinion that the insurance firms should bear a greater burden of proof for protecting the consumers.

REFERENCES

Alger, I., Salanie, F. (2006). A theory of fraud and over-consumption in experts markets. *Journal of Economics and Management Strategy*. 15, 853–881.

Andersson, F. (2001). Adverse selection and bilateral asymmetric information. *Journal of Economics*, 74. 173–195.

Darby, M. R., Karni, E. (1973). Free competition and the optimal amount of fraud. *Journal of Law and Economics*, 16. 67–88.

Emons, W. (1997). Credence goods and fraudulent experts. *RAND Journal of Economics*, 28. 107–119.

Gibbons, R. (1992). *Game theory for applied economists*. Princeton University Press. Princeton, New Jersey.

Hay, B. L., Spier, K. E. (1997). Burdens of proof in civil litigation: An economic perspective. *Journal of Legal Studies*, 26(2). 413–431.

Pesendorfer, W., Wolinsky, A. (2003). Second opinions and price competition: Inefficiency in the market for expert advice. *Review of Economic Studies*, 70. 417–437.

Pitchik, C. and Schotter, A. (1987). Honesty in a model of strategic information transmission. *American Economic Review*, 77, 1032–1036.

Sanchirico, C. W. (1997). The burden of proof in civil litigation: A simple model of mechanism design. *International Review of Law and Economics*, 17. 431–447.

Taylor, C. (1995). The economics of breakdowns, checkups, and cures. *Journal of Political Economy*, 103. 53–74.

Villeneuve, B. (2000). The consequences for a monopolistic insurer of evaluating risk better than customers: The adverse selection hypothesis reversed. *Geneva Papers on Risk Insurance Theory*, 25. 65–79.

Villeneuve, B. (2005). Competition between insurers with superior information. *European Economic Review*, 49. 321–340.

Wolinsky, A. (1993). Competition in a market for informed experts' services. *RAND Journal of Economics*, 24. 380–398.

Wolinsky, A. (1995). Competition in markets for credence goods. *Journal of Institutional and Theoretical Economics*, 151, 117–131.