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Reputation Building and New Customers with Limited Information

기업의 평판 쌓기와 정보제약이 있는 신규소비자

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Astract

Reputation Building and New Customers with Limited Information

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This paper shows the existence of potential customers with limited information generates reputation-building behavior of a firm in experience good markets even when consumers attain only noisy signals. If consumers' experiences produce noisy signals about firms' effort to make products, firms might be mired in a moral-hazard problem to deceive their customers by exerting low effort, secretly. If potential customers only can observe a few recent outcomes, however, the firm cannot stop exerting high effort although current consumers become so convinced that the firm who trades with them is a good firm.

Keywords: Reputation Building, Information asymmetry, Noisy signal, Moral Hazard, Limitation on recording, Dynamic game
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1 Introduction

In experience good markets, there exists information asymmetry between a company and consumers in that consumers cannot fully appraise the quality of the product before purchasing and consuming it. In this case, their decision whether to buy a product and the willingness to pay largely depend on their beliefs over firm's behaviors, which can be regarded as a "reputation" of the firm. Therefore, firms endeavor to provide high quality products so as to build up their reputations. However, consumers might not be able to tell whether the quality of products represents the firm' effort level or it is just a result of luck or happenstance. If consumers' experiences produce noisy signals about firms' effort to make products, it may destroy the reputation building behaviors of the firms since they are only partially rewarded form their behaviors. As a result, they could be mired in a moral-hazard problem to deceive their customers by exerting low effort, secretly.

Paradoxically, information disadvantage that potential customers may have, compared to existing customers, can solve the moral-hazard problem that originally stems from the lack of information among consumers. When potential customers choose a firm, a restaurant, or a medical clinic, they search information, such as reviews of existing customers, to predict a probability that they can receive a satisfactory result by consuming the goods or services. Since it is difficult for new customers to collect every information and reviews about products, potential customers may form a different reputation on the firm with the current customers do. The main objective of this paper is to show that the existence of potential customers with limited information induces a competent firm to exert high effort. In addition, it can be verified that the more information potential customers have, the more incentive for the firm to deceive its customers arises.

This paper uses the model designed by Mailath and Samuelson (2001). Mailath and Samuelson (2001) solve the moral-hazard problem that a competent firm confronts in experience good markets by introducing "unobserved

firm replacements." Unobserved firm replacements hinders consumers from constructing extreme beliefs about firm's type, which encourage a competent firm to exert high effort, uninterruptedly. On the other hand, Hörner (2002) shows that reputation can be built and sustained when there exists "competition among firms." Competition enables for customers to punish a firm immediately when they get a bad signal. Thus, a competent firm should adhere to high effort to survive through competition. This paper surmounts the same problem in a different manner by relying on the existence of potential customers with limited information.

Liu and Skrzypacz (2014) analyze the impact of limited records on reputation dynamics in a model where one long-lived player faces a sequence of short-lived players who observe only the last few periods of play of the long-lived player. Liu and Skrzypacz (2014) consider games with perfect monitoring in that the actions of the long-lived player are observed without noise. In addition, Liu (2011) study dynamic incentives and behavior in markets where customers must pay to observe the firms past behavior. In this paper, however, I deal with the situation in which short-lived consumers get noisy signals about the type of a long-lived firm. Moreover, Liu and Skrzypacz (2014) and Liu (2011) consider a model in which an opportunistic firm attempts to mimic a good firm while this paper addresses a model in which a competent firm tries to distinguish itself from an inept firm by choosing high effort.

2 Model

We consider an entrepreneur that sells experience goods and attempts to attract new customers who have limited information. Following are details about the market and timeline of the model.

Market There are two types of firm, an inept firm and a competent firm. An inept firm only can exert low effort while a competent firm can choose either high or low effort. Low effort is costless, but high effort entails a cost of $c > 0$. Also, high effort yields a good outcome (g) with probability $1 - \rho$ and low effort yields a bad outcome (b) with probability $1 - \rho$, in which $0 < \rho < \frac{1}{2}$, which means that consumers can attain only noisy signals for the firm's effort from their experience. The competent firm decides its effort level in every period so as to maximize the discount sum of expected payoffs, where the discount factor is δ.

In the demand side, there exist two types of consumers, new customers and existing customers. Consumers observe only the realizations of outcomes and update their belief based on the observations of outcomes. Potential customers, who are out of the market, are under limited information in that they do not know an entire outcome path; instead, they observe a few recent outcomes. On the other hand, existing customers use entire previous outcomes to establish their beliefs ϕ_t on the firm, the probability that the firm is competent. In addition, it is assumed that all consumers receive the same realization of the outcome and they get a utility of 1 as a good outcome and a utility of 0 as a bad outcome.

In each period, a firm confronts with a continuum of potential customers, of unit mass. However, the firm is only able to maintain $\lambda(\phi_t)$ amount of its existing customers, and thus, the customers exceed the amount leave the firm at the end of each period. In the model, λ is a non-decreasing and bounded function of ϕ_t

$$\lambda : [0,\ 1] \to (0,\ \Lambda).$$

Therefore, firms can raise the customer retention rate in proportion to its reputation that current customers hold.

Because there is a continuum of identical consumers, they have no market power and pay expected utility based on their beliefs. Therefore, the firm's revenue is increasing in consumers' beliefs over the firm's effort choice. Since

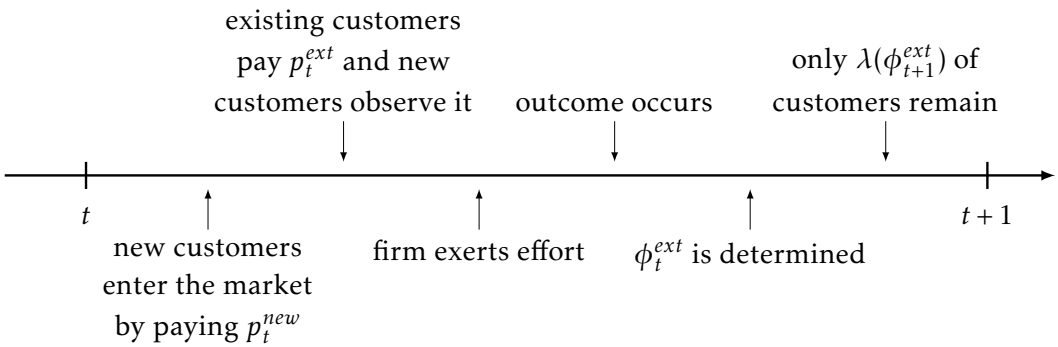

Figure I: Timing of Moves in a Period

new customers and existing customers have different level of beliefs on the firm, they also have different willingness to pay. The firm is allowed to charge different prices based on the consumers' type. New customers out of the market cannot observe existing customers' price while the opposite is possible. Once new customers enter the market, however, they can update their belief by sharing price information with the existing customers.

Timeline At the beginning of the period t, potential and existing customers decide their beliefs on the firm's type, ϕ_t^{new} and ϕ_t^{ext} based on previous outcomes, respectively. The new customers enter the market by paying an expected utility p_t^{new}, which is the probability new customers with ϕ_t^{new} assign to receiving the good outcome. Then, the existing customers pay p_t^{ext}, which is also the probability the existing customers with ϕ_t^{ext} assign to receiving the good outcome. Here, the new customers update their belief by watching the price p_t^{ext}; that is, they may deduce past outcomes beyond their observation. If the firm is competent, it chooses the effort level and outcome is realized. Lastly, ϕ_t^{ext} is updated to ϕ_{t+1}^{ext} with the outcome realization, and the existing customers over the retention rate $\lambda(\phi_{t+1}^{ext})$ leave the firm. The timing of moves is summarized in Figure 1.

Strategy and Belief The competent firm decides its effort level depending on the belief of new customers as well as that of existing customers. Also, since the belief of new customers is based only on the recent outcomes, we can divide states according to the recent outcomes. Let potential customers observe n ($< \infty$) outcomes $(x_{t-n},\ x_{t-n+1},\ \dots,\ x_{t-1})$ at time t and S denote the space containing the $(n-1)$-tuple of outcomes $s_t = (x_{t-n+1},\ x_{t-n+2},\ \dots,\ x_{t-1})$.[1] When the potential consumers observe the recent n ($< \infty$) outcomes, there exist 2^{n-1} states in S. If $n = 3$, for instance, there are four states and s_t can be $(g,\ g)$, $(g,\ b)$, $(b,\ g)$, or $(b,\ b)$. A strategy of the competent firm is a mapping

$$\tau : S \times [0,\ 1] \to [0,\ 1] \tag{1}$$

, where $\tau(s_t,\ \phi_t^{exp})$ is the probability of high effort when the recent outcome path is s_t and the existing customers' belief is ϕ_t^{exp}. On the other hand, the inept firm cannot make choices, and thus, has a trivial strategy.

Every consumer is assumed to have the same prior probability ϕ_0 that the firm is competent, which can be interpreted as the ratio of competent firms in the market. Also, $\varphi(\phi_t|s_t,\ x_t)$ denotes the posterior probability that the firm is competent, given a state $s_t \in S$, a realized outcome $x_{t+1} \in \{g,\ b\}$, and a prior probability ϕ_t. It is supposed that the existing customers use Bayes rule to update their belief on the firm's type:

$$\varphi(\phi_t|s_t,\ g) = \frac{[(1-\rho)\tau(s_t,\ \phi_t) + \rho(1-\tau(s_t,\ \phi_t))]\phi_t}{[(1-\rho)\tau(s_t,\ \phi_t) + \rho(1-\tau(s_t,\ \phi_t))]\phi_t + \rho(1-\phi_t)} \quad \text{and} \tag{2}$$

$$\varphi(\phi_t|s_t,\ b) = \frac{[\rho\tau(s_t,\ \phi_t) + (1-\rho)(1-\tau(s_t,\ \phi_t))]\phi_t}{[\rho\tau(s_t,\ \phi_t) + (1-\rho)(1-\tau(s_t,\ \phi_t))]\phi_t + (1-\rho)(1-\phi_t)}. \tag{3}$$

When the consumers update their belief with a new realized outcome, they

[1] Because the next potential customers at time $t+1$ cannot observe the outcome x_{t-n}, it does not have any role in the effort choice of the competent firm at time t. Therefore, only the recent $n-1$ outcomes have meaning when we divide states. If $n = 1$, $S = \{\emptyset\}$ and only the belief of current customers affects the competent firm's effort choice.

need to consider the probability $\tau(s_t,\ \phi_t^{exp})$ that the competent firm exerts the high effort. Unlike the existing customers who know both s_t and ϕ_t^{exp}, however, the potential customers do not know about the current customers' belief ϕ_t^{exp} since it was determined with the entire outcome path. Thus, we need an additional assumption about the new customers' guess for the belief of the existing customers. Let the potential customers postulate that the prior probability ϕ_{t-n-1}^{exp} that the existing customers had before the oldest outcome that they can observe is same with ϕ_0. That is, new customers consider they and the old customers have the same belief ϕ_0 prior to the period $t-n$. Then, the new customers update their belief from ϕ_0 to ϕ_t^{new} with the recent n outcomes, following the equations (2) and (3).

Equilibrium Consumers' payment for the goods can be described by the following function

$$p : S \times [0,\ 1] \rightarrow [0,\ 1] \tag{4}$$

, where $p(s_t,\ \phi_t)$ is the probability that consumers assign to receiving a good outcome, given a state s_t and their belief ϕ_t. Since the utility of a good outcome is 1 and that of bad outcome is 0, $p(s_t,\ \phi_t)$ is the expected utility from the goods, which consumers believe to attain. In a Perfect Bayesian Equilibrium, the strategy τ of the competent firm maximizes its profit, consumers' expectation p is correct, and consumers update their posterior probabilities according to Bayes rule:

Definition 1. A Perfect Bayesian Equilibrium is the triple $(\tau,\ p,\ \varphi)$ such that

(a) $\tau(s,\ \phi)$ maximizes the competent firm's profit for all s and ϕ,

(b) $p(s,\ \phi) = [\rho\tau(s,\ \phi) + (1-\rho)(1-\tau(s,\ \phi))]\phi + (1-\rho)(1-\phi)$, and

(c) $\varphi(\phi|s,\ x)$ follows the equations (2) and (3).

3 Reputation Building and Moral-Hazard Problem

The reputation building rules described by the equations (2) and (3) can be simplified into the bellow equations if a competent firm always exerts high effort. Now $\tau = 1$ and s_t has no role in the reputation building process:

$$\varphi(\phi_t|g) = \frac{(1-\rho)\phi_t}{(1-\rho)\phi_t + \rho(1-\phi_t)} \text{ and } \varphi(\phi_t|b) = \frac{\rho\phi_t}{\rho\phi_t + (1-\rho)(1-\phi_t)}. \quad (5)$$

The belief updating rule conceived by Mailath and Samuelson (2001) captures two features of firms' reputation building behaviors. First, reputations accumulate and dissipate gradually, like a capital stock. In order to attain good reputations, firms need to provide pleasing experiences to consumers repeatedly. After firms accumulate enough reputation, however, they can reap benefits from high reputation by raising the price or selling more products. In addition, accumulated reputation does not dissipate at a time, as a capital stock is discounted over time. Even if a firm stops its endeavor to produce high quality, it does not experience an immediate decline in its reputation. This first feature is captured in the model by the noisy signals that consumers receive; bad outcomes could happen as a result of high effort and low effort may entails good outcomes sometimes. Therefore, consumers cannot be sure about the firm's type even after they experience good or bad outcomes. That is, consumers require a record of the same outcomes to be convinced of the firm's type. The reputation building process is described in Figure II.

Second, consumers' belief responds more sensitively to the signals when they have doubt on a firm's type than when they have confidence in its type. Look at the Figure II. If ϕ_t is not close to neither of 0 and 1, the difference between ϕ_{t+1} and ϕ_t is big after the outcome x_t is realized. Thus, a good

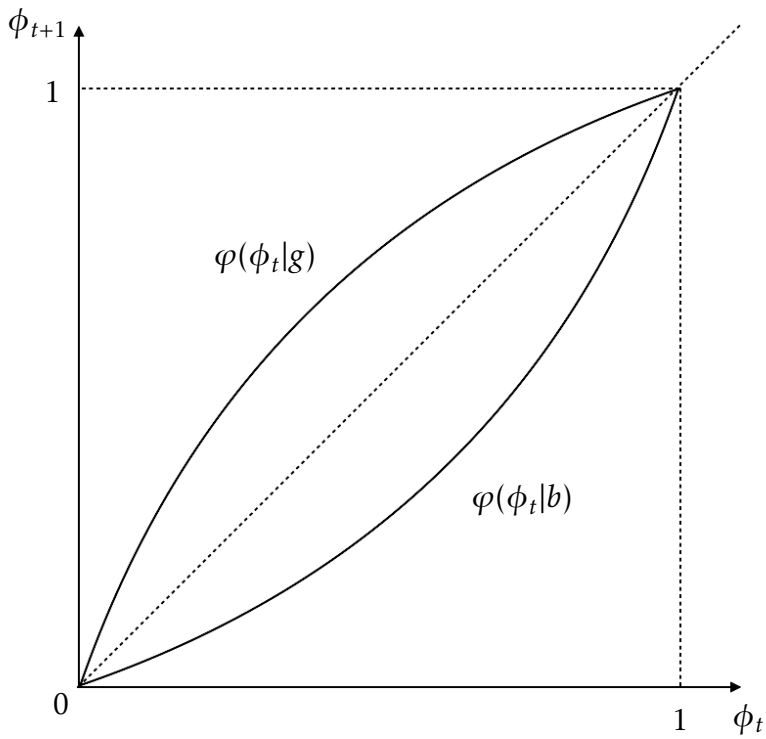

Figure II: The belief updating rules when a competent firm always exerts high effort

or bad outcome can have a great effect on consumers' beliefs on the firm's type. If they are sure about its type (ϕ_t is close to either end), however, consumers do not change their thought about the firm rapidly even if they get the opposite signal that contradicts their beliefs. These two features of the reputation building process results in the moral-hazard problem of a competent firm.

Proposition 1. If there is no limitation on the records of potential customers and the retention rate function λ is continuous on $[0, 1]$, there is no equilibrium such that a competent firm always exerts high effort.

Proof. Assume, to the contrary, that a competent firm always chooses high effort in an equilibrium, and then $\tau = 1$. If potential customers know

the entire outcome path, $\phi_t^{new} = \phi_t^{ext} (= \phi_t)$ for all t. From the definition of $p(s, \phi)$, now p depends only on ϕ_t. The value function of the competent firm is given by

$$V_c(\phi_t) = (\lambda(\phi_t) + 1)(p(\phi_t) - c) + \delta[(1-\rho)V_c(\varphi(\phi_t|g)) + \rho V_c(\varphi(\phi_t|b))].$$

Also, the value function of the firm with its one-shot deviation is

$$V_d(\phi_t) = (\lambda(\phi_t) + 1)p(\phi_t) + \delta[\rho V_c(\varphi(\phi_t|g)) + (1-\rho)V_c(\varphi(\phi_t|b))].$$

In order to prevent the deviation from being profitable,

$$V_c(\phi_t) - V_d(\phi_t) = -c(\lambda(\phi_t)+1) + \delta(1-2\rho)(\varphi(\phi_t|g) - \varphi(\phi_t|b)) > 0 \text{ in every time.}$$

However, $\varphi(\phi_t|g) - \varphi(\phi_t|b)$ goes to 0 in the limit as ϕ_t approaches to 0 or 1, which is contradictory □

The reason why the high effort equilibrium does not exist is related to the two features of this model. The fact that consumers receive only noisy signals of effort choice hinders the reputation building behaviors of firms. Without precise signals, firms can at best be partially rewarded for exerting high effort. In addition, current outcomes have very little effect on future posteriors when consumers are currently quite convinced of the firm's type. Thus, a competent firm has an incentive to deceive its customers by exerting low effort secretly when customers exhibit extreme beliefs in one direction.

4 New Customers with Limited Information

The moral-hazard problem in experience good markets is the exactly opposite situation to the story of "The Boy Who Cried Wolf." In the story, once villagers surely have believed that the boy is a liar, they do not help him even when a wolf actually does appear. On the contrary, in this model, a

competent firm repeats high effort at first in order to convince consumers that it is competent. After consumers become so convinced, however, the firm deceives its customers. Since consumers believe that the firm is totally trustworthy, consumers do not change their belief even though they receive a bad signal. On the other hand, when consumers are quite sure that the firm is inept after receiving bad signals repeatedly, the competent firm may stop exerting high effort. If bad outcomes are piled up too much, the firm is discouraged from choosing high effort as noticing that it takes too much time and cost to restore its reputation.

The key point in these two stories is that it requires repeated outcomes in one direction for the firm to build a reputation until it confronts the incentive to deceive its customers or to be too frustrated to recover consumers' belief. If there exists a group of customers who do not have an enough record of outcomes, therefore, we can encourage the competent firm to continue exerting high effort as long as the cost of high effort is not too expensive.

Proposition 2. If the potential customers hold limited information ($n < \infty$), there exists $\bar{c} > 0$ such that for all $c \in [0, \bar{c}]$, the pure strategy profile in which a competent firm always chooses high effort is a Perfect Bayesian Equilibrium.

Proof. Suppose the competent firm always chooses high effort, and thus, $\tau = 1$. From the definition of $p(s, \phi)$, now p depends only on ϕ_t. The value function of the competent firm is given by

$$\begin{aligned} V_c((x_{t-n}, s_t), \phi_t) = p(\phi_t^{new}) - c + \lambda(\phi_t^{ext})(p(\phi_t^{ext}) - c) \\ + \delta[(1-\rho)V_c((s_t, g), \varphi(\phi_t^{ext}|s_t, g)) \\ + \rho V_c((s_t, b), \varphi(\phi_t^{ext}|s_t, b))]. \end{aligned}$$

Also, the value function of the firm with its one-shot deviation is

$$\begin{aligned} V_d((x_{t-n},\ s_t),\ \phi_t) = p(\phi_t^{new}) + \lambda(\phi_t^{ext})p(\phi_t^{ext}) \\ + \delta[\rho V_c((s_t,\ g),\ \varphi(\phi_t^{ext}|s_t,\ g)) \\ + (1-\rho)V_c((s_t,\ b),\ \varphi(\phi_t^{ext}|s_t,\ b))]. \end{aligned}$$

In order to prevent the deviation from being profitable,

$$\begin{aligned} &\underline{V_c((x_{t-n},\ s_t),\ \phi_t) - V_d((x_{t-n},\ s_t),\ \phi_t)} > 0 \\ &= -c(\lambda(\phi_t^{ext}) + 1) + \delta(1-2\rho)[V_c((s_t,\ g),\ \varphi(\phi_t^{ext}|s_t,\ g)) \\ &\quad - V_c((s_t,\ b),\ \varphi(\phi_t^{ext}|s_t,\ b))] \end{aligned}$$

in every situation. In the last term of the above equation,

$$\begin{aligned} &V_c((s_t,\ g),\ \varphi(\phi_t^{ext}|s_t,\ g)) - V_c((s_t,\ b),\ \varphi(\phi_t^{ext}|s_t,\ b)) \\ &\geq\ p(\varphi(\phi_t^{new}|g)) - p(\varphi(\phi_t^{new}|b)) + \lambda(\varphi(\phi_t^{ext}|g))[p(\varphi(\phi_t^{ext}|g)) - p(\varphi(\phi_t^{ext}|b))] \\ &\quad + [\lambda(\varphi(\phi_t^{ext}|g)) - \lambda(\varphi(\phi_t^{ext}|b))][p(\varphi(\phi_t^{ext}|b)) - c] \\ &\geq\ p(\varphi(\phi_t^{new}|g)) - p(\varphi(\phi_t^{new}|b)). \end{aligned}$$

Therefore,

$$\begin{aligned} &V_c((x_{t-n},\ s_t),\ \phi_t) - V_d((x_{t-n},\ s_t),\ \phi_t) \\ &\geq -c(\lambda(\phi_t^{ext}) + 1) + \delta(1-2\rho)[p(\varphi(\phi_t^{new}|g)) - p(\varphi(\phi_t^{new}|b))]. \end{aligned}$$

Denote

$$D \equiv \min\{p(\varphi(\phi_t^{new}|g)) - p(\varphi(\phi_t^{new}|b))\} = \min_{s_t \in S} \{p(\varphi(\phi_0|s_t,\ g)) - p(\varphi(\phi_0|s_t,\ b))\}.$$

Then, the deviation is not profitable if

$$-c(\lambda(\phi_t^{ext}) + 1) + \delta(1-2\rho)D \geq 0$$

.

Therefore, by letting

$$\overline{c} = \frac{\delta(1-2\rho)D}{\Lambda+1} \tag{6}$$

, we can conclude that there exists the high effort equilibrium whenever the cost of high effort is less than or equal to $\overline{c}$ □

The lack of information that new customers confront is a necessary condition for the existence of the high effort equilibrium. It seems paradoxical in that potential customers' disadvantage in information can be a remedy for the moral-hazard problem that originally stems from information asymmetry. The competent firm continues its efforts to provide high quality even though it knows that the reputation among new customers cannot be raised above a certain level.

However, the role of limited information is to preclude new customers from establishing extreme beliefs on the type of the current firm. Since potential customers cannot be convinced of the type, the competent firm now neither has an incentive to deceive customers after repeated good outcomes nor be frustrated after repeated bad outcomes, as long as the cost of high effort is small enough. As described in Figure III, the posterior probability of new customers now have under and upper limits. So, the difference between the value of choosing high effort and that of choosing low effort does not disappear. As a result, it could be optimal for the competent firm to choose high effort in each period in order to attract potential customers when the cost does not exceed the difference.

Moreover, the following corollary can be derived from the equation (6).

Corollary 1. Let $\overline{c}(\delta,\ \rho,\ n,\ \Lambda)$ be the cutoff level of costs sustaining the high effort equilibrium. Then,

(a) $\overline{c}$ increases as the discount factor (δ) increases.

(b) $\overline{c}$ decreases as the noise factor (ρ) increases.

(c) $\overline{c}$ decreases as new customers can observe more outcomes (or n increases).

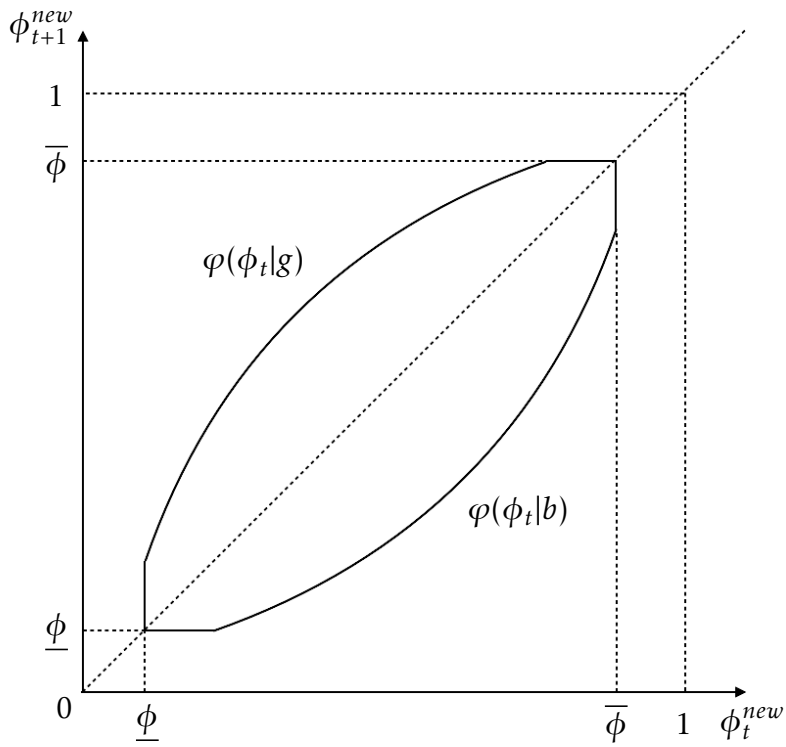

Figure III: The belief updating rules of new customers with limited information

(d) $\overline{c}$ decreases as the customer retention rate increases (or Λ increases).

When the competent firm is more patient, the firm would invest in raising its reputation for the future rather than save the effort cost as consuming the reputation. Therefore, the cost c sustaining the high effort equilibrium should be lower than before. Also, if the signal becomes noisier, it is more difficult for consumers to tell competent firms from inept firms by experiencing outcomes. A competent firm becomes more prone to exert low effort since both of the reward (increase in reputation) from a good outcome and the punishment (decrease in reputation) from a bad outcome diminish.

Also, if potential customers can observe more outcomes, the cost of high effort should decrease in order for the high effort equilibrium to exist. As

potential customers have more information, $\overline{\phi}$ and $\underline{\phi}$ approach to 1 and 0, respectively. Thus the cost of high effort must diminish as the wedge between the value of exerting high effort and that of exerting low effort shrinks. Lastly, if the proportion of current customers who know the entire outcome path increases, a competent firm needs to spend a heavy cost to exert high effort while the benefit from enhancing its reputation among new customers is relatively small. So, it would choose low effort and deceive old customers in order to save the cost even if it may lose some revenues from potential customers. In this case, the cost of high effort should be insubstantial to guarantee a high-effort equilibrium.

5 Possible Extension and Conclusion

Extension A possible extension of this model is to make existing customers to leave a review about their experience after consuming the goods. Then potential customers predict a probability that they can receive a satisfactory result from consuming the goods, based on the reviews. This extension will allow existing customers to give firms additional a reward or punishment for realized outcomes by affecting decisions of potential customers. On the one hand, the additional channel of interaction between customers and firms may solve the moral-hazard problem. However, new customers may update their belief using the pattern of reviews from existing customers. Then, new customers can establish an extreme belief, which leads to the moral-hazard problem. This extension also may generate interesting results that give a explanation for the behaviors of reviewers in the real world.

Another possible extension of this model is introducing acquisition costs for potential customers to observe previous outcomes. Then, conceptually, potential customers can attain information on the outcome path as much as they want, which possibly hampers a high-effort equilibrium. However, acquisition costs may discourage them from learning the full history. There-

fore, introducing acquisition costs would make the model convoluted, but richer and more intriguing.

Conclusion In experience good markets, consumers' decision largely depends on their beliefs over firm's behaviors, which can be regarded as a "reputation" of the firm. Thus, firms endeavor to provide high quality products to build up their reputations. If consumers' experiences produce noisy signals about firms' effort to make products, however, it may destroy the reputation building behaviors of the firms. Without precise signals, firms can at best be partially rewarded for exerting high effort. In addition, current outcomes have very little effect on future posteriors when consumers are currently quite convinced of the firm's type. Thus, a competent firm has an incentive to deceive its customers by exerting low effort secretly when customers exhibit extreme beliefs in one direction.

Paradoxically, information disadvantage that potential customers may have, compared to existing customers, can solve the moral-hazard problem. The main finding of this paper is that it shows the existence of potential customers with limited information induces a competent firm to exert high effort. The key point is that it requires repeated outcomes in one direction for the firm to build a reputation until it confronts the incentive to deceive its customers or to be too frustrated to recover consumers' belief. If there exists a group of customers who do not have an enough record of outcomes, therefore, we can encourage the competent firm to continue exerting high effort as long as the cost of high effort is not too expensive.

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국 문 초 록

본 연구는 정보 기록에 제약이 있는 신규 소비자들이 존재할 경우 기업들의 평판 쌓기 행동이 어떻게 영향을 받을 것인지 분석 한다. 경험재 시장에서는 정보의 비대칭성 및 불완전 감시로 인해, 기업들이 제품 생산에 들이는 노력 수준을 소비자들 몰래 낮추고자 하는 유인에 빠질 수 있다. 그러나 만일 신규 소비자들이 정보 기록에 제약을 가질 경우, 기업들이 계속하여 최선의 노력을 다하는 균형이 존재할 수 있다. 만일 노력에 드는 비용이 충분히 낮다면, 기업들은 신규 소비자들에게서 보다 높은 평판을 얻기 위해 매 기 최선의 노력을 다하게 된다.

주요어 : 경험재시장, 평판쌓기, 정보비대칭성, 불완전감시, 도덕적해이, 정보기록제약, 동태적게임

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