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The value of recommendations ☆

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ABSTRACT

Many markets without repeated seller–buyer relations feature third-party "monitors" that sell recommendations. We analyze the profit-maximizing recommendation policies of such monitors. In an infinitely repeated game with seller moral hazard and short-lived consumers, a monopolistic monitor with superior information about the seller's past effort decisions sells recommendations about the seller to consumers. We show that the monitor has an incentive to make its recommendations hard to predict, which in general leads to inefficient effort provision by the seller. These results hold under perfect and imperfect monitoring and in a variety of informational setting. When there are multiple competing sellers, the conflict between the monitor's profit-maximization objective and efficient effort provision is mitigated.

1. Introduction

Third party recommendations influence the trade of many goods and services. When selecting restaurants or hotels, many consumers follow the recommendations of guidebooks. Durable good purchase decisions are often guided by the recommendations of consumer magazines. Some sellers of recommendations are very influential. *Lonely Planet* tourist guides for instance are the preferred choice of many younger travelers. As anybody who ever visited one of the restaurants or hostels featured in a *Lonely Planet* guide can attest, this strong position in the guidebook market translates into substantial power in channeling travelers to certain businesses. Similarly, many consumers rely on expensive gourmet guides, such as the *Michelin Guide* or *Gault Millau*, to decide where to dine.

A seller of recommendations (henceforth called "monitor") can play an important role in alleviating moral hazard problems. When consumers interact only once with a firm, like tourists in a foreign city, they usually know very little about the firm's track record. As is well known, this implies that the firm will lack the incentive to exert costly effort to provide quality. A monitor who has information about past outcomes can potentially solve this incentive problem by rewarding good outcomes with positive recommendations and punishing poor outcomes with negative recommendations. However, as our analysis will show, a profit-maximizing monitor does not generally want to adopt a recommendation policy that induces efficient effort by the firms it recommends. Concerned with selling its advice profitably, the monitor instead wants

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to generate the right amount of unpredictability about is recommendations, as inducing an easy-to-predict action would destroy the value of the monitor's advice to consumers.

To model this conflict between the monitor's profit-maximization objective and efficiency, we analyze the infinitely repeated interaction between a long-lived monitor, a long-lived firm, and an infinite sequence of short-lived consumers. In each period, the firm decides whether to exert costly effort, and the current consumer decides whether to trade with the firm. The value of trade is positive if and only if the firm exerts effort. Our model departs from the canonical repeated game in that consumers cannot observe the outcomes of past transactions (they observe past recommendations though). Thus, without the monitor who does observe past outcomes, there would be no trade in equilibrium. In each period, the monitor sells a guide to consumers that contains a recommendation of the form "I (do not) recommend buying from the firm". The monitor's recommendation policy, set at the beginning of the game, determines the current recommendation based on the history of the game including past outcomes of trade. We allow for imperfect monitoring of the firm's effort by the monitor.

Since we are interested in the impact of the monitor's profit maximization objective, our analysis focuses on equilibria that maximize the monitor's payoff. A consumer has positive willingness to pay for the monitor's guide only if it improves her ability to predict the firm's effort and thus make a well-informed trading decision. Consider the perfect monitoring case. If the discount factor is high enough, the firm is willing to always follow the monitor's recommendation (i.e., exert effort if and only if it is recommended) provided consumers trade with the firm only if it is recommended and a bad outcome triggers the loss of all future business. The monitor then maximizes the value of its guide by recommending the firm with a probability strictly below 1, although efficiency would call for trade and effort provision in every period. Intuitively, to sell its guide at the high price, the monitor wants to induce a hard-to-predict action. This creates a need for randomization on the equilibrium path, which leads to inefficiency.

The conflict between the value of the monitor's guide and (constrained) efficient effort provision persists under imperfect monitoring. For the value of the guide to reach its maximum in all periods, the recommendation policy must be such that all consumer generations predict the same recommendation probability at some level strictly below 1. The monitor hence needs to make past recommendations uninformative for consumers, while punishing bad outcomes (which now happen on the equilibrium path) with phases of negative recommendations to induce effort incentives. We construct such a recommendation policy and show that if the firm is sufficiently patient and monitoring close enough to perfect, there is an equilibrium in which all consumers purchase the guide at the highest possible price. Moreover, if there are some "commitment consumers" who trade if and only if the monitor recommends the firm, then for high enough discount factors and almost perfect monitoring there are no alternative equilibria in which the monitor earns less. However, as in the perfect monitoring case, any equilibrium in which the monitor earns maximum profits is inefficient because trade takes place too infrequently.

The model lends itself to several extensions. First, we consider various alternative information structures. We show that if consumers do not observe past recommendations and have little knowledge about which period they are born into, then an equilibrium in which the value of the guide attains its upper bound exists for a larger range of discount factors than in the baseline model. Uncertainty about the firm's behavior can now be generated by means of long phases of negative recommendations after bad outcomes instead of recommendation probabilities below 1 after good outcomes. This implies that the firm has stronger effort incentives, which expands the scope for equilibria in which the monitor can achieve maximum profits. Another alternative information structure is that, as in the canonical repeated game, consumers have the same (potentially imperfect) information about past effort decisions as the monitor, for instance thanks to word-of-mouth communication between consumers. We show that for high enough discount factors and good enough monitoring technology, there still exist inefficient equilibria in which the monitor earns positive profits by acting as a "correlating device" for the firm and consumers.

Second, we extend the model to situations in which consumers choose between multiple firms. If consumers face an outside option of known value (for instance, McDonald's instead of a local restaurant), the maximum value of the guide may increase or decrease. In either case, welfare in an equilibrium in which the guide's value is maximized increases with the outside option because the profit-maximizing recommendation probability becomes higher. Another possibility is that consumers can choose between multiple ex ante identical firms, which are all included in the monitor's guide. With two firms, an optimal recommendation policy for the monitor is such that one and only one of the firms is recommended in every period and consumers predict that each firm is equally likely to be the "chosen one" in any given period. Consumers then value the guide because it allows them to choose the right firm. Since one of the firms exerts effort in every period, the conflict between the monitor's profit-maximization objective and welfare is fully resolved in the special case of undifferentiated firms.

Our results have implications for a wide range of situations in which decisions are influenced by a third party with superior information but no immediate stake in the outcome. Consumers are willing to pay more for information provided by product reviewers, investment advisors, political journalists, and other recommendation sellers, the more it improves their ability to make good (product adoption, investment, or election and campaign financing) decisions. The third party that sells the guide is therefore better off if consumers are more uncertain, and may want to exacerbate such uncertainty where possible. Whenever efficiency calls for little or no variation in decisions over time, the incentive to make information valuable to consumers is therefore likely to clash with efficiency.