

# Reputation, Trust, and Rebates: How Online Auction Markets can Improve their Feedback Mechanisms

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Trust and trustworthiness are crucial to the survival of online markets, and reputation systems that rely on feedback from traders help sustain trust. However, in current online auction markets only half of the buyers leave feedback after transactions, and nearly all of it is positive. In this paper, we propose a mechanism whereby sellers can provide rebates to buyers contingent on buyers' providing reports. Using a game theoretical model, we show how the rebate incentive mechanism can increase reporting. In both a pure adverse selection model, and a model with adverse selection and moral hazard, there exists a pooling equilibrium where both good and bad sellers choose the rebate option, even though their true types are revealed through feedback. In the presence of moral hazard, the mechanism induces bad sellers to improve the quality of the contract.

The existing mechanisms (e.g., Dellarocas (2003), Ba et al. (2002), Miller et al. (2005), Dellarocas and Wood (2006)) either require to include a third party in the transaction or require some information which is not easy to obtain. For example, Miller et al.'s (2005) requires the market maker to provide incentives to rating providers, and Dellarocas and Wood's (2006) requires buyers to take missing feedback into consideration, though it is very difficult for an average buyer to get this information. The mechanism proposed in this paper addresses the shortcomings of these existing mechanisms. The objective of this paper is to provide a mechanism for a self-sustaining market, in the sense that only sellers and buyers are involved with minimal transaction costs. We propose giving sellers an option to provide a rebate to cover the reporting cost to a buyer. This will provide an incentive for buyers to provide feedback

without any loss to the online market maker. The only cost an online auction market might have is to produce this option for sellers, but this cost may not be substantial. It appears that good sellers would be more inclined to provide a rebate than the bad sellers. If so, it seems that there exists a separating equilibrium which can help us identify the seller's type. I set up the benchmark model of adverse selection with the rebate mechanism in the following way:

1. Nature chooses sellers type  $\theta \in \{\theta_G, \theta_B\}$ .
2. The seller chooses to rebate  $r$  or not, where  $r > C$ , the seller's actions set is  $\{Rebate(R_S), NoRebate(NR_S)\}$ .
3. Buyers choose a bid, at the expected value of the transaction,  $P \geq 0$ .
4. The seller chooses to accept or reject  $P$  based on his reservation price. If he rejects, the game ends. If he accepts, then the game moves onto the next step.
5. Nature chooses the quality of the transaction that buyers get from different types of sellers,  $Q_H$  or  $Q_L$ . Transaction quality is a new draw in every period.  
 $q(\theta)$  = probability of providing  $Q_H$ .  
 $q(\theta_G) = \alpha$   
 $q(\theta_B) = \beta$   
 $0 \leq \beta < \alpha \leq 1$
6. The buyer chooses  $(NR, GR, BR)$ . The buyer can choose to give a good report  $(GR)$ , bad report  $(BR)$ , or no report  $(NR)$ ; the reporting cost is  $C$  for all buyers. Assume all buyers report honestly if they decide to report, i.e.  $GR$  for  $Q_H$  and  $BR$  for  $Q_L$ .
7. Payoffs are received for period  $t$ .

After analyzed the equilibrium, I found that *no* separating equilibrium exists where good (bad) type sellers choose to provide feedback rebates and bad (good) type sellers choose not to do so. If the reporting cost  $C$  is smaller than  $(1 - \mu_0)(\alpha - \beta)$ , there exists a pooling equilibrium where both types of sellers choose to provide rebates for reporting, and buyers learn a seller's type by observing the feedback reports. If the reporting cost  $C$  is greater than  $(1 - \mu_0)(\alpha - \beta)$ , then both types of sellers would choose no rebate,  $NR_S$ .

I also analyzed the equilibrium of the model which combines both adverse selection and moral hazard, and discussed possible extensions dealing with changing IDs issue in the paper. I am collecting data from eBay and try to identify the reason why traders do not leave feedback in an online auction market, such as the opportunity cost of time or effort, or because of fear of retaliation. After we identify why buyers do not leave feedback, we can then choose the appropriate form of rebate to use in an online auction market. One potential form of rebate in the online auction market is that sellers set up an automatic feedback option contingent on receiving payment. Another potential form of rebate is a combination of the automatic feedback leaving option together with monetary incentives.

## References

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