

# Balances of Power on eBay: Peers or Unequals?

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## 1 Introduction

Electronic reputation systems substitute for trust between individuals who engage in online transactions without knowing one another. The mechanisms through which online reputations are managed are likely to affect the evolution and acceptance of peer to peer systems. In this paper, we examine eBay’s reputation mechanisms to investigate how “balances of power” can emerge inside reputation systems, and “unequals” appear amongst “peers.” In established marketplaces and economic arenas, laws are devised to protect weaker agents (such as minority shareholders or entrant competitors) from imbalances of power and collusion. Here we discuss how imbalances can lead to biased feedbacks and undermine the trust of an electronic reputation system’s participants, and we propose strategies to counter these risks.

eBay is the best known and most successful online auction service. Its reputation system is remarkable both for the amount of feedback provided by its users and for the overwhelming percentage of positive feedback (Friedman & Resnick 2001) (Resnick & Zeckhauser 2001) (Resnick, Zeckhauser, Swanson & Lockwood 2002). More than half of completed transactions result in feedback provided by the seller or the buyer (or both). The percentage of negative feedback is less than one per cent for both buyers and sellers (Resnick & Zeckhauser 2001). For comparison, SatMetrix’s survey on online customers satisfaction was answered only by 11 per cent of potential respondents (Singer 2001), while a 2001 report by Nielsen/NetRatings and Harris Interactive (Macaluso 2001) found that the average online customer satisfaction rate was 7.7 (out of 10).<sup>1</sup> Furthermore, BizRate.com’s post-fulfillment satisfaction surveys of eBay’s and half.com’s (an auction website controlled by eBay) auctioneers fall well short of eBay’s own customers reputations.<sup>2</sup> How is it that customers of eBay can be so satisfied when “hijacking and fraud plague [its] users[?]” (see (Cox 2002))?

Resnick and Zeckhauser (see (Resnick & Zeckhauser 2001)) advance hypotheses to explain eBay’s peculiar feedback rates and positive customer reputations: eBay users may feel a sense of belonging to a community that they are willing to spend effort to maintain. In particular, “courtesy feedback” (the exchange of reciprocal kindnesses) and fear of retaliation may lead to “collusive” behavior between buyers and sellers, with predominantly positive feedback. In addition, eBay customers have disincentives to provide negative feedback. (Miller, Resnick & Zeckhauser 2002) also highlight that communications between buyer and seller to correct an unsatisfactory transaction may never appear in the published feedback. In short, incentives to provide feedback apply “much less forcefully” when the

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<sup>1</sup>Even more strikingly, 28 per cent of all attempted online purchases failed in the sample considered by the Boston Consulting Group in 2000 (Group 2000). Also, 41 per cent of individuals who participated to online auctions reported having problems (such as late delivery or goods never arriving) in a survey commissioned by the National Consumer League (Pastore 2001).

<sup>2</sup><http://www.bizrate.com> reports customer satisfaction scores between 6.4/10 and 8.0/10 for half.com and between 7.0/10 and 8.2/10 for eBay.

experience has been negative (see (Resnick & Zeckhauser 2001)). This means that if dissatisfied customers are less likely to give feedback, then eBay reputations are biased. (Resnick & Zeckhauser 2001) note that this bias may not work against the system itself, since making dissatisfaction more visible could reduce faith on the marketplace.

In this paper we focus on whether the differences in “maturity” (by which we refer to the number of positive feedback received by an eBay customer) between buyers and sellers determines “balances of power” condition for feedback information, skewing feedback in favor of sellers and larger players, and determining self-reinforcing biased dynamics.

## 2 Balances of Power and Reputation Inflation

An analysis of the literature on eBay’s reputation system suggests the following factors as motivation for participants’ feedback: fairness, reciprocity (or “courtesy,” and intention to induce reciprocity), retaliation (and fear of retaliation).

If all participants acted only out of fairness, feedback would be frequent *and* truthful. However, less than two per cent of eBay transactions are associated with negative or neutral feedback for the buyer or the seller (see (Resnick & Zeckhauser 2001)), while millions contemporary transactions take place daily on eBay. These facts combined make it difficult to believe that feedback is always fair.

If all participants acted only out of courtesy, both feedback rates and positive feedback would be high. However, eBay data show that this is not the case.

If participants acted according to personal self interest rather than for social benefit, feedback rates and the ratio of positive feedback would still be high, but more variable. This is what we find in the data and what we discuss in this paper.

There are several reasons why both buyers and sellers as well as participants with differing numbers of transactions care about their reputations. First, sellers may expect buyers to consider their reputations when bidding. Buyers may (wrongly) expect sellers to refuse items to a buyer with a poor reputation. Social acceptance and need for recognition may pressure both buyers and sellers to achieve higher status. In addition, certain plateaus of feedback have additional benefits (on eBay, special notification stars and new functionalities). Hence, both buyers and sellers may have reasons to be courteous, induce reciprocity, fear retaliation, and desire positive feedback. However, while sellers have a greater desire to establish a history of positive feedback, on eBay they also have the power to arbitrarily judge buyers on parameters which should not be arbitrary, such as timeliness and completeness of a buyer’s payment.

Because of the way reputations are reported in eBay, negative feedback is less apparent and accessible for participants with a large amount of positive feedback, or “maturity.”<sup>3</sup> Negative feedback may be perceived as less threatening by “larger” participants. Mature participants are more experienced about providing feedback and their feedback may be expressed more freely and honestly. On the other side, participants with less maturity may feel a greater pressure of social norms and conformity and are eager to build a history of feedback, for example inducing reciprocity.

(Resnick & Zeckhauser 2001) have found that, on average, sellers tend to be the more “mature” than buyers. We hypothesize that, on average, buyers on eBay have more to lose from providing negative feedback to sellers and are also more willing to provide positive feedback in order to build up reputation history. On the other hand, sellers have less constraints in providing negative feedback, although they still have interest in achieving “courtesy equilibria” to advance their reputation.

It is simple to use the statistics reported in Table 7b in (Resnick & Zeckhauser 2001) for back-of-the-envelope calculations of an imaginary sequential game where a small buyer has to decide to provide a positive, negative, neutral feedback to a larger seller, or no feedback at all. Statistics suggest

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<sup>3</sup>eBay subtracts negative feedback from positive ones, thus weighting them equivalently.

that providing positive feedback to the seller is the best move for a buyer. Of course, a buyer has additional motivations after an unsuccessful transaction, such as the desire to provide a fair judgment or to benefit the community as well as have the will to retaliate in anger. In these cases, the imaginary payoffs would change. The best strategy changes from providing positive feedback to providing no feedback at all. Punishing the other participant, but not so harshly to be punished back. Resnick and Zeckhauser note in fact that giving negative feedback has disincentives and that feedback that is not provided may hide negative feedback (Resnick & Zeckhauser 2001). Here, we highlight that the pressure to comply and defect is stronger for an individual with a less mature reputation (because she will fear more retaliation, as negative feedback will be more visible) and for an individual with fewer transactions than the one she has transacted with (because pressure is stronger). These dynamics may be self-reinforcing. Both biases are stronger for the seller versus the buyer and for mature participants versus beginners. Because the number of transactions of a certain participant cannot be seen by other customers, it becomes more difficult to distinguish a truly good seller from a mediocre one on the basis of the ratios of positive versus negative/neutral feedback alone. If dissatisfied buyers use “no feedback” as their strategy and transactions with no feedback do not appear on a seller’s reputation history, a vicious dynamic may bring many mediocre sellers to appear on the same level, in terms of positive feedback, with reliable sellers. The large amount of positive feedback for certain participants may not be due to their quality, but simply to their many transactions. <sup>4</sup>

### 3 Some findings

Our current and preliminary results, based on an ongoing survey of eBay transactions, suggest that the ratio of buyers providing a positive feedback to sellers declines with the “maturity” of the buyer. Conversely, the ratio of sellers providing positive feedback to buyers grows with the maturity of the sellers, although it goes down again with very large sellers (above 1000 unique positive feedback).

While these preliminary findings must be taken with caution, given the limited sample size we are considering (transactions over three days in consumer electronics), they suggest the existence of dynamics similar to the ones we have described in the sections above: small buyers feel more compelled to provide positive feedbacks to sellers, but more mature buyers will more frequently adopt the “no feedback” strategy.

In addition, (Resnick & Zeckhauser 2001) show that negative feedback given to the seller becomes less frequent with the growing maturity of the seller (even more so than for mature buyers). Since sellers are in general more mature than buyers, the data reported by (Resnick & Zeckhauser 2001) is also compatible with our balances of power hypothesis. <sup>5</sup>

Interestingly, data reported in (Resnick & Zeckhauser 2001) (Table 7b) show that when the buyer moves first and provides a positive feedback, the seller is very likely to reciprocate. However, when the seller moves first and provides positive feedback, the buyer is much more likely to offer no feedback at all. This suggests two conclusions: the buyer is moving first to induce a courtesy equilibrium (or because certain buyers have too many transactions not to adopt such a simple strategy). However, a large number of buyers do not “answer” this call. This number is significant, as the general trend is for positive feedback to be reciprocated. Since this particular relation between positive feedback and no feedback for the buyer only takes place under these conditions, it provides evidence compatible with the hypothesis that “no feedback” is a proxy for negative feedback.

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<sup>4</sup>Only if the system were operating optimally the feedback would be based on quality. In other words, rather than having quality determine the history of positive feedback, the history of positive feedback mimics and self-reinforce the *appearance* of quality.

<sup>5</sup>(Resnick & Zeckhauser 2001) also show that sellers give negative feedback more often (although still very rarely). It would be interesting to test whether this is due to a size differential between buyer and seller. Note that sellers provide more positive feedback as well as negative feedback, further evidence of balances of power.

As our gathering and analysis of data continues, we plan to extend our analysis to consider the impact of “maturity differentials” between buyers and sellers on the feedback they provide as well as the timing of their offers.

## 4 Consequences and Solutions

Because positive feedback is often drawn by courtesy or fear of retaliation, and because the lack of feedback hides potential negative experiences, reputations may not offer accurate information of quality. Since eBay does not list the number of total transactions, it is not possible to know which participants benefit the most from these skewed feedback. Hence, eBay reputations may be both inflated towards positive and biased against negative feedback, but in an unequal way: a vicious-circle type of dynamics favors mediocre sellers making them appear on the same level (in terms of positive feedback) with truly good sellers.

If this is true, then why does eBay in general and its reputation system seems to be so popular (see also (Resnick & Zeckhauser 2001))? First, the system is easy to use and to understand. There could also be mitigating factors, including those noted by (Resnick & Zeckhauser 2001): initiation fees, stoning behavior, and the sense of community (which hides the bad apples but inspires trust). Being an auction system, eBay also benefits of a particular phenomenon: rather than having sellers competing for buyers, eBay has become such a focal point that buyers often compete for unique items offered by sellers.

In other words, eBay reputations are biased just enough to inspire a general sense of trust and community (Resnick & Zeckhauser 2001), but not so much as to become completely devoid of meaning (or determine a lemon market situation (Akerlof 1970)). This could be due to the fact that, in reality, the supply of bad sellers is not infinite.

However, someone else may pay the price for the biases. Users acting according to personal interest rather than social benefit may cause the exit of small participants, dissatisfied with the system and unwilling to even bother reporting their negative experience. Rather than checking how many sellers exited the eBay market because of negative feedback, knowing how many buyers left after only one transaction could be particularly interesting.

Would a system with more accurate feedback work better? (Miller et al. 2002) have proposed a sophisticated solution based on micro payments. The mechanism they present is able to satisfy the features identified in (Friedman & Resnick 2001) as critical for a reputation system. However, the forces which create balances of power in reputation systems are likely to persist in more sophisticated environments: buyers may still be unwilling to provide negative feedback for fear of retaliation if the retribution for truthful feedback was smaller than the perceived retaliation risks. Retaliation still exists under a payment system if participants feel a stronger incentive (or threat to) to retaliate than the payment incentives they receive. In other words, also payment-based reputation system would have to address additional non monetary motivations. At the same time, it would have to be simple enough to be understood by a vast set of participant - otherwise, rather than rationality and game theory, participants would adopt heuristics influenced by peer pressure, indecision about one’s own evaluation, conformity, different perception of quality, and uncertainty about the distribution of quality over several transactions.

We make therefore two simple alternative proposals. The first is to require that the seller provides the first feedback (which would decrease seller’s power on the buyer) or to automate buyer feedback altogether, where possible. An eBay buyer who pays quickly and efficiently should have her positive feedback awarded automatically. If she has paid the correct amount using an acceptable or agreed upon method within the time specified as well as providing accurate information (i.e. shipping address) then her part of the deal is complete and the system notes that she completed her transaction satisfactorily.

eBay already collects the information needed to award feedback in this case when payments are completed through PayPal. If buyer's feedback were be automated, buyers would be less afraid to give accurate feedback, and there would be fewer occasions for colluding equilibria.

The second proposal is to make the total number of transactions visible (in addition to the reputations scores), and to give distinct summaries for buyer and seller reputations. By combining an automated buyer feedback and the report of total number of transactions for each participant, one could reduce courtesy-retaliation fear bias without dramatically altering the "feel good" eBay atmosphere, since many participants could still use the "no feedback" approach. While negative feedback may not rise (disrupting the atmosphere), the "no feedback" portion would now be more recognizable and could be used as additional information and to reduce the imbalances between participants.

## 5 Conclusions

In this paper we have considered eBay's experience to discuss the possible emergence of unbalances in online reputation systems. In established marketplaces and economic arenas, laws are devised to protect weaker agents (such as minority shareholders or entrant competitors) from imbalances of power and collusion. As peer to peer systems become more sophisticated and economically significant, similar protections will have to be devised to protect "peers" from what could be the emergence of "unequals." Our two proposals for eBay reputation system go in that direction.

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