Importance of Being Earnest: Evaluating the Impact of Displaying Fraudulent Reviews on Review Portals

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Abstract

The recent growing interest in social media for legitimate promotion has been accompanied by an increasing number of fraudulent activities. Businesses attempt to use fraudulent reviews to boost their sales. Such fraud activities have become even more popular due to the current low reputation penalty when being caught. Unfortunately, existing research mainly focuses on how to detect fraud activities. Beyond fraud detection, little is known about what review portals should do with the fraudulent reviews after detecting them. In this paper, we study how consumers respond to potentially fraudulent reviews and how review portals can leverage such knowledge to design better fraud policies by introducing a reputation penalty based on businesses’ historical fraud activities. To do so, we combine randomized experiments with statistical analysis using large-scale archival data from Yelp. Our experiments show that when websites display both fraudulent and non-fraudulent reviews rather than censor fraudulent reviews, customers click more restaurants, spend more time on the website, and are more engaged with the content. Our experiments also show consumers trust a review portal more when it displays both non-fraudulent and fraudulent reviews. Interestingly, we find that instead of mixing the fraudulent and non-fraudulent reviews in line with each other for display, it is more efficient to display them on separate pages along with an overall adjusted rating that corrects for bias from the potentially fraudulent reviews. This finding indicates consumers tend to process fraudulent and non-fraudulent information differently. It is critical for review portals to not only display the fraudulent information but also display it in an effective way to reduce consumer cognitive cost. Finally, our archival analysis using a Maximum Likelihood Estimation method allows us to design a novel fraud-awareness reputation system that product search engines can deploy to better improve consumer trust and decision making.