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How Fake Customer Reviews Do — and Don't — Work

New research reveals the short-term gains and long-term costs.

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Between April and June 2020, the U.S. e-commerce market experienced record-breaking 44.4% growth — and it's likely to continue to thrive as businesses large and small shift to online sales in the face of the pandemic. To make e-commerce work, platforms like Amazon need a rating and review system that helps consumers make these online purchasing decisions with confidence. But because these reviews are typically a significant factor in search rank algorithms and thus

have a big impact on product visibility and sales, these systems often also create powerful incentives for sellers to manipulate their products' rankings through fake reviews.

In response to this issue, many platforms have developed automated tools to identify and remove reviews that are obviously fake. For example, Yelp uses a proprietary algorithm that filters out about 16% of their reviews. But as sellers become more sophisticated in how they craft these fake reviews, it's become harder and harder for platforms to root them out. To better understand the scope of the problem — and what companies can do to address it — we conducted a 10-month study exploring how fake reviews are generated, and how they impact sellers, buyers, and platforms.

Through our research, we discovered a large and thriving market for fake reviews. One of the most common mechanisms we found for procuring these reviews was via private Facebook groups: Sellers would use these groups to recruit people to purchase their products and leave an authentic-sounding five-star review, and then compensate them via PayPal for the cost of the product, any taxes and fees, and in some cases, a \$5-10 commission. We also found that these groups would occasionally disappear, and then almost immediately be replaced by new, similar groups.

We worked with a team of UCLA undergraduates to infiltrate these markets, observe them, and collect data on the products for which sellers were soliciting reviews. In parallel, we gathered data for these products from Amazon, including their ratings and reviews, sales ranks, prices, and advertising strategies. Since we were able to observe exactly when sellers started and stopped soliciting fake reviews, and compare that activity to their products' sales data, this enabled us to measure

the effectiveness of these reviews as far as increasing both short- and long-term sales outcomes.

Our first important finding is that while this phenomenon may not be well-known, it is extremely prevalent. Based on our observations, we estimate that as many as 4.5 million sellers sourced fake reviews via these Facebook groups in the past year.

Second, fake reviews appear to be most common for a certain type of product. These products tend to be priced similarly to their competitors, generally in the \$15-\$40 price range, and they typically already have high ratings, with an average rating of 4.4 and an average of 183 reviews (suggesting that many of these pre-existing reviews may also have been fake). Finally, these products are generally not name brands, and the vast majority of sellers are located in or around Shenzhen, China. While we can't be certain of the reason for this trend, recent changes in Amazon's policies meant to encourage more global sellers have resulted in a significant increase in Chinese manufacturers selling directly on the platform (rather than supplying American companies). These new sellers often have tight margins and little reputation to preserve, creating a whole host of quality control issues.

This all suggests that fake reviews are a more common than you might think — but are they an effective sales strategy? As far as short-term impact, the data is clear: Fake reviews are extremely effective. In the two weeks after sellers began to recruit reviewers, their products' ratings increased by an average 0.16 stars, and the average number of reviews these products received per week doubled from five up to an average of 10 reviews per week. While some of these reviews might be organic, i.e., from real, non-compensated customers, the fact that the jump in reviews happens immediately after sellers start buying fake reviews suggests that this spike is driven by the fake reviews. This increase in

reviews translated into a significant boost in sales, with these products experiencing an average 12.5% bump in their sales ranks.

However, this boost was short-lived. We had hypothesized that companies might be using fake reviews to address the “cold start” problem (i.e., that high-quality products without any reviews struggle to get noticed). This would suggest that once they began to build a positive reputation via fake reviews, real consumers would start buying these products and leave organic reviews, yielding a self-sustaining sales process. But instead, we saw that the increases in ratings, number of reviews, and sales tended to fade out within one to two months. Just eight weeks after the sellers stopped buying fake reviews, their products’ average ratings fell by 6.3%, their sales ranks fell by 21.5%, and they started to receive large numbers of one-star ratings from unhappy customers. This suggests that these products were actually of lower quality, and customers likely felt deceived by the inflated ratings and reviews.

Clearly, these fake reviews are causing real problems for buyers. But it’s not just consumers who suffer when sellers use fake reviews. As fake reviews corrode consumer trust in the review system, the platform itself takes a hit as well. So what are platforms like Amazon doing to combat this issue?

In 2019 alone, Amazon spent more than \$500 million and employed more than 8,000 people to reduce fraud and abuse on its platform. And in our study, we found that Amazon was in fact deleting around 40% of these fake reviews — but it took them an average of more than 100 days after a fake review was posted to remove it. That’s more than enough time for sellers to enjoy the short-term sales boost, and for enough consumers to be misled to generate a large increase in angry one-star reviews. And this limited impact isn’t surprising. After all,

despite Amazon's efforts to combat fake reviews, sellers are clearly still finding them effective enough to be worth buying.

As sellers become more sophisticated in how they create fake reviews, online marketplaces like Amazon are finding themselves in a never-ending arms race to develop effective ways to identify and remove them — and retain consumer trust. While there's no clear answer, our research does suggest one potential solution: to do what we did. E-commerce platforms should consider partnering with social media platforms such as Facebook to better understand how sellers are recruiting fake reviewers, and potentially use that visibility to speed up the process of identifying and removing fake reviews. Finding ways to crack down on this activity would be a win-win-win, as it would reduce illicit activity on social media platforms, increase trust in e-commerce platforms, and enable a more positive, reliable experience for consumers.

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