Hurry! Only 3 left in stock! When scarcity signals are most powerful

Does disclosing product availability really boost sales and profits? These are the contexts where it works.

April 28, 2020

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How many times have you gone online to book a flight and a message pops up to say, "Hurry! Only 3 seats left!" Or you're browsing hotels and you're alerted that "only 2 rooms remain for your dates" and that "10 other people are looking at this hotel" which was "booked 2 times in the last hour." The sales channel may have changed, but the tactic is the same: pressure selling, designed to make consumers rush into a purchase.

The use of scarcity signals, like those just described, varies among online retailers. Amazon, for instance, discloses the availability of "lightning deals," or limited-time offers, in real time and for the entire deal duration. Others, such as Veepee, never disclose product availability other than when it sells out. With no apparent industry consensus, we set out to discover to what extent scarcity signals served to drive sales and profitability in online retail, and in what context providing such information was more effective.

To reveal or not to reveal?

Why would a retailer consider revealing inventory information in the first place? Telling consumers when availability is low has two effects:

- *the scarcity effect* induces some customers to buy while they can for fear of missing out; and
- seeing customers rushing to buy prompts others to follow suit, in what is known as *the herding effect*. Product popularity is taken as a proxy for product value.

Harnessing these effects can boost sales. However, it can also backfire.

Customers driven by scarcity pressure may spend less time shopping around and make an impulse purchase less aligned with their needs. And customers following the herd may buy a product that doesn't live up to their expectations.

In both cases, customers may be left feeling disappointed and ask for a refund or return, which can be costly for a business, especially if any moderate sales gained through pressure selling were cancelled out by a massive number of subsequent returns.

How profitable is it, then, for a firm to display this information?

To answer this question, we partnered with a global online retailer and analyzed its transaction data. The retailer's business model is "flash sales" — branded products that are heavily discounted and sold until stocks run out. Margins are slim, and increasing sell-out is key for profitability. Our data spanned over 190,000 products, nearly 1,300 brands and around half a million customers.

The disclosure of low product availability was what interested us. This particular retailer didn't disclose product availability until its inventory level had dropped to five or fewer units, at which time it displayed "five units left" and continued to update availability, in real time, until the end of the sales campaign.

With this "five or fewer units" policy, we were also able to observe sales patterns of products whose availability was never disclosed. But we had to be careful: the fact that a product sold down to five units implied that it was already a bestseller, and we didn't want to confuse that fact with the disclosure of "five units left" as being the reason for its popularity.

So, we twinned like-for-like products, linking products of the same brand, category and price that, just before hitting five units, had sold a similar number of units. As such, we are confident that the patterns we observed were indeed caused by the revelation of inventory information.

A clear boost

We found that the disclosure of low product availability increased hourly sales — they grew by 13.6%. This stands to reason: Who likes missing out on an exclusive deal?

However, those purchases made under the influence of scarcity signals were far more likely to be returned — product return rates increased by 17%. As mentioned earlier, the disclosure of product availability may pressure customers into impulse buying, only to find that their purchases don't suit their real needs.

Because returns involve additional operational costs, revealing product availability could negatively affect a retailer's profitability. For this, we studied net sales (a product's hourly sales minus hourly returns) and found they still increased — by 12.5% — after the retailer revealed low availability. This means that, even in the context of a return canceling out the entire economic contribution of a sale, the effect of these scarcity signals remains profitable overall.

These results would imply that revealing low product availability to customers is an effective tool for boosting sales and profits in online retail, even accounting for the possibility of returns.

The importance of context

Having said that, the disclosure of scarcity signals is not equally important for all products: some elements accentuate or temper the strength of this technique. In particular, we find that scarcity signals are most powerful under certain conditions.