

Five-Star Pricing

A new model helps firms make the most of online review sites.

A consumer peruses online reviews, looking for a new restaurant that hits a sweet spot: chic but reasonably priced, lively but not too raucous, carnivore-approved but vegetarian-friendly. She finds half a dozen contenders, then compares the two highest-rated ones, both close by. Comments for both report great food and occasionally hit-or-miss wines, so she opts for the one with slightly higher reviews.

Online review sites like Yelp and Trip Advisor have made it increasingly easy for consumers to tap into others' experiences and quickly aggregate a lot of information about unfamiliar products and services. For businesses, the reviews can be a critical element of success: recent studies have found that for independent restaurants, an additional star on an aggregate review can translate into a revenue gain of anywhere from 5 to 9 percent.

Surprisingly, says, Professor **Costis Maglaras**, the *social learning* that takes place among strangers on review sites — as opposed to on social networks of friends, such as Facebook — might have the greatest impact on consumer decisions today. In two new papers, Maglaras, with Bar Ifrach of Airbnb and Marco Scarsini of Singapore University of Technology and Design, studied the dynamics of markets with online review systems. The researchers wanted to discover how consumers learn from and react to others' reviews, and how, in turn, firms should react to consumers' behavior in light of the reviews. They study the effect of the [ubiquitous thumbs-up or thumbs-down](#) on consumer learning and its impact on their purchasing behavior.

“We model how people interpret reviews, how they learn, and how their learning affects their decision to try a product,” says Maglaras. The researchers analyze this model to create a framework to help firms answer a host of questions related to optimizing prices: How should a firm selling a new product set prices? Should it change prices over time? In what direction? Once consumers start reviewing the product, and others react to the reviews, should the firm raise or lower its price? When? By how much?

Analyzing the dynamics of online review sites, the researchers developed a differential equation that traces whether — and how fast — social learning occurs, particularly for new products introduced in a large market. One aspect of the model is that it allows firms to anticipate the effect of a price change in consumer response, reviews, and future demand. For example, how will consumers rate a product selling at 20 percent price reduction in the first month of its release, and how many more will try and then review the product in response to this price promotion? “If you want consumers to learn how great your new product is, you may want to accelerate how information about it gets diffused to other customers,” says Maglaras.

Maglaras and his co-researchers show that early reviews are more influential than later reviews, and explain why positive reviews may be followed by a negative one, and vice-versa, due to the quality expectations formed by consumers. And, promotional pricing, often

targeted to an appropriate set of customers, is a great way to encourage early purchases and speed up the social learning process.

“By attracting more early buyers, a firm accelerates the spread of information about the value customers perceive they are getting from the product,” Maglaras says. “As a result, consumers — and firms — get to learn whether a product is a high-quality one faster than usual. Our model allows a firm to estimate what results its pricing policies and early promotion strategies will produce, including what happens if it speeds up social learning.”

Firms are well aware of the strong effect reviews have on consumers but, surprisingly, adopt different approaches to consumer reviews. The vast majority of e-retailers, such as Amazon and eBay, encourage consumers to publish reviews. However, multi-channel firms, those with both brick-and-mortar and online stores, take on different policies. For example, Banana Republic friendlyly elicits reviews from its online shoppers, while the similarly positioned J.Crew does not. “Some products will sell great, having received great reviews, and others will lose demand because of negative reviews. On average we found that firms will benefit from encouraging consumer reviews because the increased profit from highly reviewed products will exceed the loss from poorly reviewed ones,” says Maglaras. “It is wonderful to discover that transparency is good for consumers as well as firms,” he concludes.

Costis Maglaras is the David and Lyn Silfen Professor of Business in the Decision, Risk, and Operations Division and director of the Doctoral Program at Columbia Business School.

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