

# Researchers find that Amazon might not always be pitching you the best prices

June 2 2016, by Thea Singer

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A team led by Northeastern's Christo Wilson shows that Amazon is much more likely to point buyers to sellers who use an automated practice called algorithmic pricing, even though those sellers' prices may be higher than others'. Graphic by YoungHee Jang/Northeastern University

You need a new Chromebook computer, so you go online to Amazon

and start your search. You click on an attractive item on the product page—an Acer 11.6-Inch, CB3-111-C670. Up pops the computer's price (\$188.88, new, last Friday morning) and, to the right, the ubiquitous "buy box," beckoning "Add to Cart." You oblige.

Had you looked more closely, you might have done better.

New [research](#) led by Northeastern's Christo Wilson, assistant professor in the College of Computer and Information Science, reveals that Amazon is much more likely to feature sellers in the buy box who use an automated practice called algorithmic pricing, even though their [prices](#) may be higher than those who don't. Algorithmic pricing readjusts product prices in real-time using computer algorithms, reacting to variables such as competitors' changing prices and sellers' inventory levels. The research was [presented](#) at the 25th International World Wide Web Conference.

"When you go to a page on Amazon, what you're seeing is typically not the lowest price available. For example, we found that 60 percent of sellers using algorithmic pricing have prices that are higher than the lowest price for a given product," said Christo Wilson.

That Acer is a case in point: A tiny link below the buy box takes you to 107 other sellers whose prices for the same new machine start at just \$149.



**60 percent of third-party sellers on Amazon who use algorithmic pricing offer prices that are higher than the lowest available price for a given product.**

*(Source: Chen, Le, and others. An Empirical Analysis of Algorithmic Pricing on Amazon Marketplace. In Proc. of WWW, 2016.)*

Credit: YoungHee Jang

"When you go to a page on Amazon, what you're seeing is typically not the lowest price available," says Wilson. "For example, we found that 60 percent of sellers using algorithmic pricing have prices that are higher than the lowest price for a given product. Now, 70 percent of the time they only raise the price by \$1, but there are many cases where the price increase is on the order of \$20 to \$60. So you really have to take that extra step and click through to the list of all sellers for a given product if you want to find the lowest price."

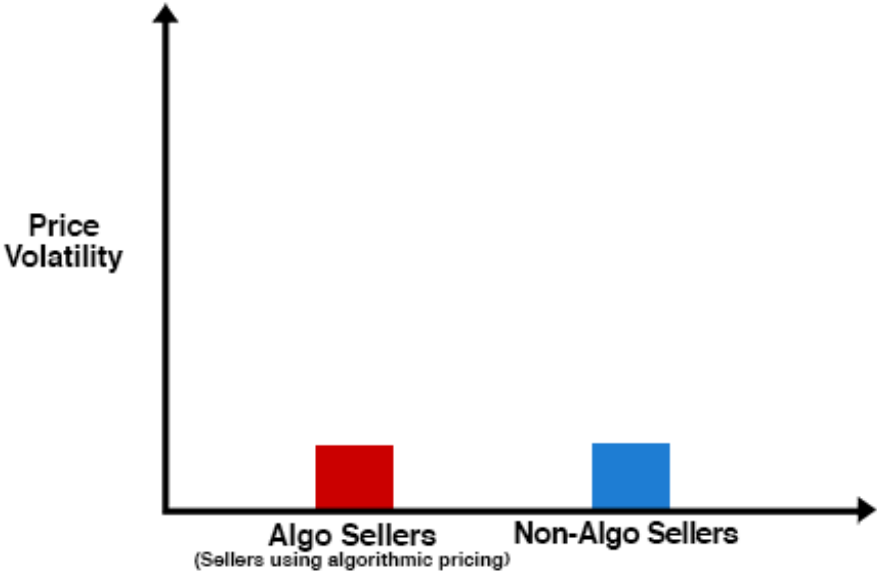
## **Pick your strategy**

If algorithmic pricing sounds too sophisticated for independent sellers, it's not: For a fee, any one of Amazon's more than 2 million third-party sellers can easily subscribe to an automated pricing service through companies such as Sellery, Feedvisor, and RepriceIt, becoming so-called algo sellers. They then set up a pricing strategy by choosing from a menu of options like these: Find the lowest price offered and go above it (or below it) by X dollars or Y percentage, find Amazon's own price for the item and adjust up or down relative to it, and so on. The service does the rest.

"Amazon has a relatively low number of algo sellers—from 2 to 10 percent," says Wilson. "But they cover almost a third of the best-selling products offered by outside merchants, so the impact is large."

The researchers arrived at their findings by analyzing the algorithmic pricing strategies of the 500-plus third-party sellers on Amazon who offered any of the 1,640 best-selling products over a period of four months. Needless to say, the constant tracking of competitors' changing prices led to remarkable volatility.

## PRICE VOLATILITY OF PRODUCTS ON AMAZON



The prices of products offered by third-party sellers who use algorithmic pricing (algo sellers) are almost 10 times as volatile as the prices of products sold by non-algo sellers.

*(Source: Chen, Le, and others. An Empirical Analysis of Algorithmic Pricing on Amazon Marketplace. In Proc. of WWW, 2016.)*

Credit: YoungHee Jang

On average, the prices of about one-third of the products the researchers tracked—333 out of 1,000—changed at least once a day, prices of 170 products changed more than three times per day, and 50 changed more than eight times per day. "The prices of products offered by algo sellers were almost 10 times more volatile than products with no algo [sellers](#)," says Wilson.

### The buy box black box

Amazon uses its own proprietary algorithm to select who gets in the buy box on any given page at any given time—or, as Wilson puts it, "which

seller is going to be ordained and put onto the page." But he and his colleagues gleaned some hints.

A low price is part of the mix, but so are percentage of positive reviews and having Amazon Prime status. Considering feedback does benefit customers, says Wilson, but there are limits. "Suppose that you have 99 percent positive feedback and I have 95 percent positive feedback. Our research shows that you can charge a significantly higher price than I can and you will still be selected for the 'buy box.'"

Bottom line, he says, "this is very much a winner-take-all system. If you're that one lucky seller who gets the 'buy box,' you make all the sales. So if you want to be competitive for the top-selling products, you pretty much have no choice: You have to be an algorithmic seller."

Provided by Northeastern University

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