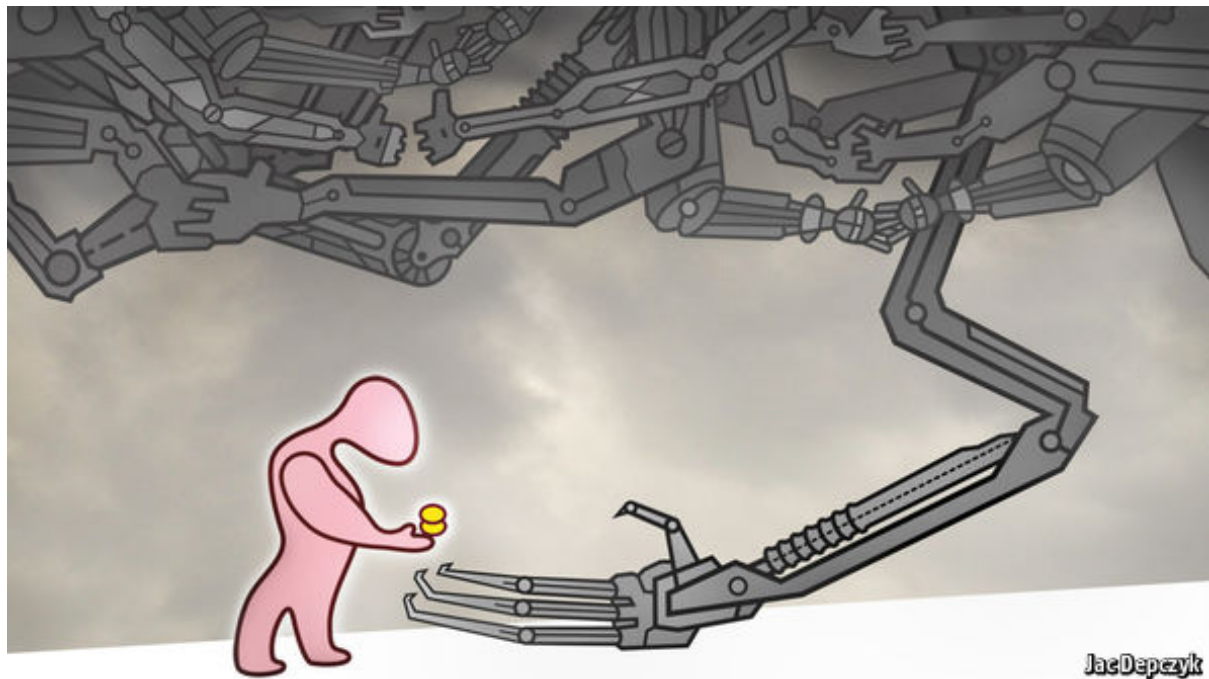


Free exchange

Price-bots can collude against consumers

Trustbusters might have to fight algorithms with algorithms



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MARTHA'S VINEYARD, an island off the coast of Massachusetts, is a favourite summer retreat for well-to-do Americans. A few years ago, visitors noticed that petrol prices were considerably higher than in nearby Cape Cod. Even those with deep pockets hate to be ripped off. A price-fixing suit was brought against four of the island's petrol stations. The judges found no evidence of a conspiracy to raise prices, but they did note that the market was conducive to "tacit collusion" between retailers. In such circumstances, rival firms tend to come to an implicit understanding that boosts profits at the expense of consumers.

No one went to jail. Whereas explicit collusion over prices is illegal, tacit collusion is not — though trustbusters attempt to forestall it by, for instance, blocking mergers that leave markets at the mercy of a handful of suppliers. But what if the conditions that foster such tacit collusion were to become widespread? A recent book* by Ariel Ezrachi and Maurice Stucke, two experts on competition policy, argues this is all too likely. As more and more purchases are made online, sellers rely increasingly on sophisticated algorithms to set prices. And algorithmic pricing, they argue, is a recipe for tacit collusion of the kind found on Martha's Vineyard.

Consider the conditions that allow for tacit collusion. First, the market is concentrated and hard for others to enter. The petrol stations on the Vineyard were cut off from the mainland. Second, prices are transparent in a way that renders any attempt to steal business by lowering

prices self-defeating. A price cut posted outside one petrol station will soon be matched by the others. And if one station raises prices, it can always cut them again if the others do not follow. Third, the product is a small-ticket and frequent purchase, such as petrol. Markets for such items are especially prone to tacit collusion, because the potential profits from “cheating” on an unspoken deal, before others can respond, are small.

Now imagine what happens when prices are set by computer software. In principle, the launch of, say, a smartphone app that compares prices at petrol stations ought to be a boon to consumers. It saves them the bother of driving around for the best price. But such an app also makes it easy for retailers to monitor and match each others’ prices. Any one retailer would have little incentive to cut prices, since robo-sellers would respond at once to ensure that any advantage is fleeting. The rapid reaction afforded by algorithmic pricing means sellers can co-ordinate price rises more quickly. Price-bots can test the market, going over many rounds of price changes, without any one supplier being at risk of losing customers. Companies might need only seconds, and not days, to settle on a higher price, note Messrs Ezrachi and Stucke.

Their concerns have empirical backing. In a new paper^{**}, the authors outline three case studies where well-intentioned efforts to help consumers compare prices backfired. In one such instance, the profit margins of petrol stations in Chile rose by 10% following the introduction of a regulation that required pump prices to be displayed promptly on a government website. This case underlines how mindful trustbusters must be about unintended consequences. The legal headache for them in such cases is establishing sinister intent. An algorithm set up to mimic the prices of rival price-bots is carrying out a strategy that any firm might reasonably follow if it wants to survive in a fast-moving market. Online sellers’ growing use of self-teaching algorithms powered by artificial intelligence makes it even harder for trustbusters to point the finger. A cabal of AI-enhanced price-bots might plausibly hatch a method of colluding that even their handlers could not understand, let alone be held fully responsible for.

Since legal challenges are tricky, argue Messrs Ezrachi and Stucke, it might be better to direct efforts at finding ways to subvert collusion. Trustbusters could start by testing price-bots in a “collusion incubator” to see how market conditions might be tweaked to make a price-fixing deal less likely or less stable. A “maverick” firm, with different incentives to the incumbents, might have a lasting impact; an algorithm programmed to build market share, for instance, might help break an informal cartel.

Regulators might also explore whether bots that are forced to deal directly with consumers — say, through an app that sends an automatic request to retailers when a petrol tank needs filling — could be enticed to undercut rivals. Or they might test to see if imposing speed limits on responses to changes in rivals’ prices hampers collusion. It may be that batching purchases into bulky orders might thwart a collusive pay-off by making it more profitable for robo-sellers to undercut rivals.

Never knowingly undersold

The way online markets work calls for new tools and unfamiliar tactics. But remedies have to be carefully tested and calibrated — a fix for one problem might give rise to new ones. For instance, the more consumers are pushed to deal directly with price-bots (to thwart the

transparency that allows rival sellers to collude), the more the algorithms will learn about the characteristics of individual customers. That opens the door to prices tailored to each customer's willingness to pay, a profitable strategy for sellers.

Still, there is one old-school policy to lean on: merger control. There is growing evidence in old-economy America that trustbusters have been lax in blocking tie-ups between firms. A market with many and diverse competitors, human or algorithmic, is less likely to reach an effortless, cosy consensus about what is the "right" price for sellers, and the wrong price for consumers.

* *"Virtual Competition: the Promise and Perils of the Algorithm-driven Economy", Harvard University Press (2016)*

** *"Two Artificial Neural Networks Meet in an Online Hub and Change the Future (of Competition, Market Dynamics and Society)" (April 2017)*